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January 13, 2011

B-09075-0149-2731
REPA4-2731-020v1

Mr. Aaron Zimmerman
US EPA Region 7
901 North Fifth Street
Kansas City, KS 66101

Subject: EPA Contract No. EP-W-07-020, Task Order 031; Final Site Sampling Visit Report for Flexsteel Industries, Inc., Dubuque, IA.

Dear Mr. Zimmerman:

In response to Task Order 031, Task 5, under EPA Contract No. EP-W-07-020, please find enclosed the final Site Sampling Report for the subject Flexsteel Industries, Inc.

At EPA's direction, Booz Allen conducted a site sampling visit at this facility on August 27, 2010 to collect soil and groundwater samples. Analytical results were received from the EPA Region 7 Laboratory on October 6, 2010. The enclosed Site Sampling Report, which includes the analytical results, presents and documents the findings of the site sampling visit. This report addresses and incorporates draft Site Sampling Report comments received from the EPA TOCOR.

If you have any questions regarding this deliverable, please feel free to call me at (816) 448-3253.

Sincerely,

John D. Dixon
Regional Manager

BOOZ ALLEN HAMILTON

Enclosures

cc: Cynthia Hutchison, EPA TOCOR (letter and original enclosures)
Evelyn Stanley, EPA CO (letter only)
Adina Felton, EPA CS (letter only)
REPA4_Zone 3 Deliverables

RCRA SITE SAMPLING REPORT

FOR

FLEXSTEEL INDUSTRIES, INC.
(EPA ID No. IAD005146048)
Dubuque, Iowa

IN SUPPORT OF
THE U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 7

UNDER
RCRA ENFORCEMENT, PERMITTING, AND ASSISTANCE
(REPA4) CONTRACT
ZONE 3, REGION 7

Task Order R7031

DOCUMENT CONTROL NUMBER
REPA4-2731-020v1

JANUARY 13, 2011

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1. INTRODUCTION

Under the U.S. Environmental Protection Agency (EPA) RCRA Enforcement, Permitting, and Assistance (REPA4) Contract, Booz Allen Hamilton (Booz Allen) was requested under Task Order (TO) R0731 to support the collection and analysis of environmental samples of various media at 14 sites located in the State of Iowa. The 14 sites were selected by EPA due to known or suspected soil and/or groundwater contamination at each site. Included in the list of 14 sites is the Flexsteel Industries, Inc. (Flexsteel) facility located in Dubuque, Iowa.

Under Task 1 of TO R0731, Booz Allen developed a general Quality Assurance Project Plan (QAPP) governing the acquisition, management, and use of all sampling data. The Final TO R0731 QAPP (REPA4-1731-001v1) was approved by EPA on July 19, 2010. Booz Allen also developed a Sampling and Analysis Plan (SAP) for each of the 14 sites. The site-specific SAPs detailed the sampling locations and methods to be used at each site. The Flexsteel SAP (REPA4-1731-009v1) was approved by EPA on August 20, 2010.

Soil and groundwater samples were collected at the Flexsteel site on August 27, 2010, per the QAPP and SAP. All samples were shipped, via Federal Express, to the EPA Region 7 Laboratory in Kansas City, Kansas for analysis. Analytical results were received on October 6, 2010. This RCRA Site Sampling Report documents the sampling performed at Flexsteel and presents the analytical results of the sampling. This report also provides a screening-level comparison of the analytical results to the May 2010 EPA Regional Screening Levels (RSLs).

2. SITE BACKGROUND

This section presents background information for the Flexsteel site, including a summary of past investigations and the sampling rationale. Further discussion is provided in the site-specific SAP.

2.1 SITE LOCATION

Flexsteel is located at 3200 Jackson Street in Dubuque, Iowa. The facility operates as a manufacturer of upholstered furniture products. A general area map showing the location of the Flexsteel facility is included in Appendix A (Map 1).

2.2 OPERATIONAL HISTORY

According to a December 11, 1991 final Preliminary Assessment (PA) report, Flexsteel began operations at its current location in 1939. The facility consists of a 750,000 square-foot building divided into two main divisions: Upholstered Products Division and Metal Products Division. The Upholstered Products Division produces furniture of wood frame construction, and includes wood shaping and gluing, wood painting and varnishing, and assembly of fabric and seats onto wood frames. The Metal Products Division produces steel-framed upholstered seating and bedding for recreational vehicles, and includes metal fabrication, metal cutting, tubing formation, welding, degreasing/cleaning, and painting. Flexsteel also operates a fleet maintenance garage, where personnel perform mechanical repair and maintenance services on semi-tractor trailers used for product deliveries. A map of the facility is included in Appendix A (Map 2).

2.3 ENVIRONMENTAL SETTING

According to the 1991 final PA report, the Flexsteel site is located in the Coule Valley, which is a paleo-river channel and is a topographic low. The channel follows a straight course southeast toward the Mississippi River, located approximately 2.5 miles southeast of the site. The surface water drainage in the area of the facility follows the Coule Valley.

Flexsteel is located atop an alluvial surficial aquifer consisting of soil and unconsolidated, unaltered sediments in the form of buried channels and alluvium. The groundwater table beneath the site varies from 10 to 20 feet below ground surface (bgs). Wells installed in this aquifer typically produce high yields. Based on modeling conducted in 1990, groundwater flow at the Flexsteel site is to the west (toward the Coule Valley), then southeast toward the Mississippi River. The City of Dubuque uses groundwater as its potable water supply. The Municipal Well field is located approximately 1.5 miles southeast of the Flexsteel site.

The 1991 final PA report noted that the shallow aquifer beneath the City of Dubuque is locally contaminated. Several Superfund sites are/were located within a 4-mile radius of the Flexsteel site, including a Peoples Natural Gas site, an A.Y. McDonald site, a Key City Coal Gas site, and the Former Dubuque Municipal Landfill site. Investigations of the latter site have shown groundwater contamination from the landfill could migrate into the Dubuque Municipal Well field under a wide range of pumping levels. Constituents of concern (COCs) associated with the

Former Dubuque Municipal Landfill site include polychlorinated biphenyls (PCBs), lead, cadmium, chromium, zinc, toluene, xylene, and coal tar wastes.

2.4 ENVIRONMENTAL INVESTIGATION HISTORY

During a May 1988 RCRA Compliance Evaluation Inspection (CEI), the storage of hazardous waste (waste paint) for longer than 90 days without a RCRA permit was discovered at Flexsteel. EPA required the submittal of a Closure Plan to formally close the illegal drum storage unit. A Closure Plan was submitted in March 1990, and was approved by EPA (with modifications) on October 6, 1992.

The drum storage area was part of a concrete paved and concrete walled room that was also used to store paint products (known as the Paint Storage Room). As the concrete floors and walls were in good condition and no spills were known to have occurred, closure consisted of cleaning, triple-rinsing, and analysis of the rinse waters to verify closure. Closure activities were performed in early 1993. A Closure Certification, submitted by Flexsteel's consultant, was received by EPA on March 8, 1993. The certification stated that all rinse water samples reported "non-detect" for all COCs (toluene, trichloroethane, xylene, and lead), and that the drum storage area closure had been completed per the approved Closure Plan.

Three Visual Site Inspections (VSIs) were performed in 1991 by EPA contractors as part of an overall PA process. The December 11, 1991 final PA report identified five solid waste management units (SWMUs) and four areas of concern (AOCs). The drum storage area (SWMU 1) was noted to be in good condition, with no evidence of spills or leaks, and awaiting EPA approval of the Closure Plan. The other four SWMUs were also noted to be structurally sound and exhibiting no evidence of spills or releases. The December 11, 1991 final PA report described no RCRA concerns with the identified SWMUs.

The December 11, 1991 final PA report described the following AOCs:

- Three (3), 10,000-gallon diesel underground storage tanks (USTs) located east of the Fleet Maintenance Building and the associated dispensing island
- One (1), 175-gallon waste oil UST located southwest of the Fleet Maintenance Building
- One (1), 500-gallon gasoline UST west of the Metal Products Division
- Two (2), 7,500-gallon spill control USTs located west of the Metal Products Division

The diesel, waste oil, and gasoline USTs were removed in December 1990 with the assistance of the Iowa Department of Natural Resources (IDNR). Prior to removal (in October 1991), an IDNR contractor took soil gas samples around each of these USTs to determine if releases had occurred. Aside from the soil gas samples collected around the 500-gallon UST west of the Metal Products Division, none of the soil gas samples showed volatile contaminant detections. The two samples collected around the 500-gallon gasoline UST west of the Metal Products Division showed volatile detections of 6.3 to 6.9 parts per million (ppm) in soil gas.

The December 11, 1991 final PA also notes that the two, 7,500-gallon spill control USTs were removed without the assistance of IDNR. No soil gas samples were collected near these tanks in October 1991. The PA report notes that these two USTs were connected to the drum storage

area and served as spill containment for the area. Prior to their removal, Flexsteel pumped several thousand gallons of liquid from the USTs. Flexsteel believed that the liquid was groundwater that had infiltrated into the tanks, and was not waste. However, the liquid was disposed of as hazardous waste as a precaution.

The December 1991 final PA report also identifies an area of lacquer thinner disposal in the northeast corner of the facility as an AOC. An estimated 20-foot by 20-foot area was used for the disposal of an unknown volume of waste lacquer thinner in November 1980. During the VSI, a small area (approximately three-foot by three-foot) of minimally-stressed vegetation was noted.

A map showing the locations of all SWMUs and AOCs identified during the PA is included in Appendix A (Map 3).

Aside from the closure of the drum storage area, the EPA files contain no further information regarding investigation of the SWMUs mentioned above. The December 11, 1991 final PA report mentions that the IDNR was assisting with the investigation and removal of the petroleum product USTs. However, it appears that the spill control USTs and the lacquer thinner disposal area have not been investigated further.

2.5 SAMPLING RATIONALE

According to the December 11, 1991 final PA report, the drum storage area was used for the storage of waste paint-related materials. The two, 7,500-gallon spill control USTs were connected to the drum storage area at some time in the past to serve as secondary containment for spills or releases. Prior to their removal in 1991, several thousand gallons of liquid (believed to be groundwater) were pumped from the USTs. Groundwater infiltration indicates that the USTs were not structurally sound at the time of their removal. According to the December 11, 1991 final PA report, as well as the rest of the EPA file materials, no investigation has been performed to determine if the former spill control USTs were a source of soil or groundwater contamination.

It also appears that no investigation of the lacquer thinner disposal area identified in the December 11, 1991 final PA report has been conducted.

The goal of the RCRA Site Sampling at Flexsteel is to determine if contamination is present at the site. As described above, the extent of contamination at the former spill control USTs or the lacquer thinner disposal area has not been fully delineated. Therefore, four sample locations were selected near the former location of the spill control USTs for subsurface soil and groundwater sampling. A single sample location was selected at the lacquer thinner disposal area for surface soil, subsurface soil, and groundwater sampling. A map of the sampling locations is included in Appendix A (Map 4). Constituents of concerns have been identified as volatile organic compounds (VOCs) and total RCRA metals.

3. SITE SAMPLING

This section describes the site sampling activities performed at Flexsteel. Unless otherwise discussed the following Section, all activities were performed as described in the EPA-approved QAPP and SAP.

3.1 PRE-SAMPLING ACTIVITIES

3.1.1 Facility Access

Under Task 3 of TO R0731, Booz Allen contacted the facility to obtain permission for site access and sampling. On July 28, 2010, Booz Allen discussed the planned sampling activities with Mr. Steve Goffinet, Building Electric and Maintenance Supervisor/Truck Fleet Supervisor at Flexsteel. Mr. Goffinet understood the purpose for the sampling and granted permission to conduct the sampling on August 27, 2010. A copy of a Telephone Conversation Record documenting the conversation with Mr. Goffinet is included in Appendix B.

Under Task 4 of TO R0731, Booz Allen contacted the Iowa Department of Natural Resources (IDNR), Iowa Geological and Water Survey section to request identification of all groundwater wells within a one-mile radius of the site. Location data and maps were forwarded to the Iowa Geological and Water Survey section on August 7, 2010. Search results received from the Iowa Geological and Water Survey are included in Appendix C. These results are summarized and discussed in Section 5.3.2 of this report.

Booz Allen contacted Iowa One Call on August 16, 2010 to request public utility marking at the Flexsteel site. The public utilities around the Flexsteel site were marked with utility flags prior sampling. Additionally, per the July 28, 2010 conversation with Mr. Goffinet, no underground private utilities were thought to exist at or near the planned sampling locations.

3.2 SAMPLING DESIGN

3.2.1 Sample Locations

Four locations (subsurface soil and groundwater sampling locations) were selected near the former spill control UST site. A single location (surface soil, subsurface soil, and groundwater sampling location) was also selected at the lacquer thinner disposal area. These locations are depicted in Map 4 of Appendix A. Descriptions of the locations, as well as the rationale for their selection, are summarized in Table 1 below. Table 1 also includes global positioning system (GPS) coordinates for each sample location. The GPS coordinates were located using a Trimble GeoExplorer GeoXT hand-held GPS unit. According to the manufacturer's specification sheets, this GPS unit provides location data with sub-meter accuracy. The data files were post-processed by the unit's rental company (Field Environmental Instruments, Inc.), and corrected coordinates were e-mailed to Booz Allen. The post-processed GPS data is included in Appendix D.

The area of the former spill control USTs is evident by the 56-feet x 62-feet concrete surface pad southwest of the Furniture Loading Dock. The surrounding area is paved with an asphalt covering. The descriptions presented in Table 1 for Locations 002 through 005 reference measurements from the concrete surface pad.

Table 1. Sample Locations, Flexsteel

Location	Location Description*	GPS	Selection Rationale
001	3 feet south of the stairway between the facility and the boiler room.	Latitude: +42º 31' 57.985933125" Longitude: -90º 40' 57.236536871"	Exact area of the lacquer thinner disposal is unknown (believed to be at/near the location of the stairway). Location south of the stairway was selected since a stormwater drain connected to underground piping was observed north of the stairway.
002	63 feet southwest of the loading dock; 1 foot southwest of the west corner of the concrete pad (off-pad)	Latitude: +42º 31' 48.831210827" Longitude: -90º 40' 55.780237061"	Immediately outside of the former UST area; believed to be downgradient.
003	34 feet southwest of the loading dock; 24 feet southeast of the southwest edge of the concrete pad (within the pad)	Latitude: +42º 31' 48.787141049" Longitude: -90º 40' 55.229084550"	Within the former UST area.
004	34 feet southwest of the loading dock; 42 feet southeast of the southwest edge of the concrete pad (within the pad)	Latitude: +42º 31' 48.565536187" Longitude: -90º 40' 55.189650869"	Within the former UST area.
005	63 feet southwest of the loading dock; 1 foot southwest of the south corner of the concrete pad (off-pad)	Latitude: +42º 31' 48.297004200" Longitude: -90º 40' 55.404403264"	Immediately outside of the former UST area; believed to be upgradient.

* = distances presented in the Location Description were measured on August 27, 2010.

3.2.2 Sample Intervals and Matrices

As presented in the SAP, the sampling design for this site included the collection of 17 environmental samples at the five (5) locations described above. Eight (8) quality control (QC) samples were also to be collected. These 25 samples included the following:

- Five (5) groundwater samples from direct-push boreholes advanced at the site
- One (1) surface soil sample (0-6 inches bgs at Location 001)
- Eleven (11) subsurface soil samples (1-2 feet bgs, 4-5 feet bgs, and 6 inches above the water table at Location 001; 5-6 feet bgs and 6 inches above the water table at Locations 002 through 005)
- One (1) duplicate groundwater sample (QC)
- One (1) MS/MSD groundwater sample (QC)
- Two (2) duplicate soil samples (one subsurface, one surface) (QC)

- One (1) MS/MSD soil sample
- Three (3) equipment rinsate blank sample (one for groundwater sample collection equipment; two for soil sample collection equipment) (QC)

All samples were collected for VOC (SW-846 Method 8260) and total RCRA metals (SW-846 Method 6010) analyses. Table 2 presents an accounting of the normal samples (i.e., non-QC samples) and the QC samples collected.

It should be noted that, although no public or private utilities were reported to be present near Location 001, three attempts with a hand auger met PVC piping and/or utility-grade trench fill material at approximately one foot bgs. A fourth boring was advanced to sample the 0-12 inches bgs interval, and no further advancement was attempted. Therefore, the planned 1-2 feet bgs, 4-5 feet bgs, and 6 inches above water table soil intervals at Location 001 were not sampled. Additionally, since the borehole was not advanced at Location 001, the planned groundwater sample at this location was not collected.

It should also be noted that the borehole at Location 002 did not produce enough groundwater within the screen point sampler for collection of groundwater samples. As such, the planned groundwater sample at Location 002 was not obtained.

Table 2. Sample Locations, Matrices, and Analyses

Location	Sample ID*	EPA Lab ID	Type	Media	Depth**	Analyses
001	FI-01-SL-001	5006-1	Normal	Soil	Surface (0-1 foot bgs)	VOCs, metals
	FI-02-SL-001	5006-1FD	QC; Duplicate	Soil	Surface (0-1 foot bgs)	VOCs, metals
002	FI-01-SL-002	5006-6	Normal	Soil	Subsurface (5-6.5 feet bgs)	VOCs, metals
	FI-02-SL-002	5006-7	Normal	Soil	Subsurface (12.5-14 feet bgs)	VOCs, metals
003	FI-01-SL-003	5006-8	Normal	Soil	Subsurface (5-6.5 feet bgs)	VOCs, metals
	FI-02-SL-003	5006-9	Normal	Soil	Subsurface (12.5-14 feet bgs)	VOCs, metals
	FI-01-GW-003	5006-104	Normal	Groundwater	Groundwater encountered at approximately 14 feet bgs	VOCs, metals
004	FI-01-SL-004	5006-10	Normal	Soil	Subsurface (5-6.5 feet bgs)	VOCs, metals
	FI-02-SL-004	5006-10FD	QC; Duplicate	Soil	Subsurface (5-6.5 feet bgs)	VOCs, metals
	FI-03-SL-004	5006-12	Normal	Soil	Subsurface (13.5-15 feet bgs)	VOCs, metals
	FI-01-GW-004	5006-105	Normal	Groundwater	Groundwater encountered at approximately 15 feet bgs	VOCs, metals

Location	Sample ID*	EPA Lab ID	Type	Media	Depth**	Analyses
005	FI-01-SL-005	5006-13	Normal	Soil	Subsurface (5-6 feet bgs)	VOCs, metals
			QC; MS/MSD	Soil	Subsurface (5-6 feet bgs)	VOCs only
	FI-02-SL-005	5006-14	Normal	Soil	Subsurface (12.5-14 feet bgs)	VOCs, metals
	FI-01-GW-005	5006-106	Normal	Groundwater	Groundwater encountered at approximately 14 feet bgs	VOCs, metals
			QC; MS/MSD	Groundwater	Groundwater encountered at approximately 14 feet bgs	VOCs only
	FI-02-GW-005	5006-106FD	QC; Duplicate	Groundwater	Groundwater encountered at approximately 14 feet bgs	VOCs, metals
N/A	FI-01-EB-001	5006-107	QC; Soil EB	Aqueous	N/A (Geoprobe EB)	VOCs, metals
N/A	FI-02-EB-001	5006-108	QC; Soil EB	Aqueous	N/A (Hand Auger EB)	VOCs, metals
N/A	FI-03-EB-001	5006-109	QC; GW EB	Aqueous	N/A (Groundwater EB)	VOCs, metals
N/A	FI-01-TB-001	5005-110FB	QC; Trip Blank	Aqueous	N/A	VOCs

* = Sample ID FI-01-SL-001 corresponds to Flexsteel Industries, first sample, soil, collected at location 001
** = bgs: below ground surface

3.3 SAMPLING METHODS

Booz Allen, Terranext, and PSA Environmental personnel performed the surface and subsurface sampling at Flexsteel. Unless otherwise discussed in this section and/or Section 3.5, all sampling was performed as described in the EPA-approved QAPP and SAP. Sampling observations and methods were documented in field logbooks and forms, as well as through photographs. Copies of the field logbooks and forms are included in Appendix E, and the photographic log is included in Appendix F.

3.3.1 Surface Soil Sampling

The exact location of the lacquer thinner disposal area is not known. However, a sample (identified as Location 001) was planned for the area marked on the PA map (Appendix A, Map 3). A surface soil sample was planned for the 0-6 inches bgs interval at Location 001. Upon arrival at the location, a cement stairway was observed at the approximate area of Location 001. Stormwater drains from facility rooftops and between buildings were observed entering the ground near the planned sampling area, including on the northwest side of the stairway. Booz Allen selected the southeast side of the staircase for Location 001 sampling to avoid the known private utility. While planning the sampling at Location 001, an employee of Flexsteel explained that the stormwater drains run parallel to the building and discharge to a stormwater drain north of the facility. Booz Allen observed the stormwater drain, and noted that the main conduit

appeared to be approximately 10 feet from the building. Location 001 was flagged approximately five feet from the building.

It was decided to hand auger Location 001 for the first few feet to ensure that the stormwater drain was not encountered. However, at the initial Location 001, a blue plastic pipe was encountered at approximately 12 inches bgs. The initial Location 001 borehole was abandoned, and an exploratory borehole was advanced approximately three feet southeast of the initial location. At approximately 12 inches bgs, fine-grained sand (the type of fill used in utility trenches) was encountered. The exploratory borehole was abandoned, and a second exploratory borehole was advanced approximately two feet to the west. The same utility-grade fill was encountered at the one-foot bgs interval. Based on these findings, Booz Allen decided to site Location 001 near the initial borehole and collect a 0-12-inches bgs interval sample as the surface soil sample. Due to utility concerns, no further advancement of the Location 001 borehole was performed.

A 2 ¾-inch diameter stainless steel hand auger was advanced to 12 inches bgs. Immediately after withdrawal, an ESS Lock N' Load disposable syringe was used to collect approximately five-gram soil aliquots for VOC analysis. The VOC soil aliquots were immediately placed into the appropriate sample containers [two, 40-milliliter (mL), pre-weighed vials containing sodium bisulfate preservative and two, unpreserved, 40-mL vials]. After placement in the sample containers, the VOC samples were labeled, taped, containerized in empty cubitainers, and transferred to a sample cooler with ice. The sample container types and preservatives used are listed on the Analytical Services Request (ASR) form, which was provided by the EPA Region 7 Laboratory. A copy of the ASR form is included in Appendix G.

After the collection of VOC samples, the remaining soil in the sampling interval was placed in a stainless steel bowl. Grass, roots, concrete debris, and rocks were removed from the bowl. The soil was then homogenized using a stainless steel spoon. Following homogenization, the surface soil sample for total RCRA metals was collected by transferring the soil into the appropriate container (one, eight-ounce glass jar) using the stainless steel spoon. The sample container was then labeled, taped, bubble-wrapped, and transferred to a sample cooler with ice.

It should be noted that the SAP specified the 0-6 inches bgs interval as the Location 001 surface soil sampling interval. However, based on the field decision that Location 001 would only be advanced to 12 inches bgs interval, it was decided that the entire 0-12 inches interval would be collected as the surface soil sample at this location.

Surface soil sampling analytical results are presented and discussed in Section 4.2 of this report.

3.3.2 Subsurface Soil Sampling

Subsurface soil samples were planned at Locations 001. However, as discussed above, Booz Allen decided not to advance the hand auger past the surface soil sampling interval at this location. As such, no subsurface samples at Location 001 were collected.

Subsurface soil samples were collected at Locations 002 through 005. The subsurface soil samples were collected using a Geoprobe 5400 unit equipped with a Macro-Core soil sampler with disposable acetate sleeves. Soils were sampled from the acetate liner following the same procedures described in Section 3.3.1.

It should be noted that the subsurface soil sampling intervals listed in the SAP were 5-6 feet bgs and 6 inches above groundwater encounter at Locations 002 through 005. However, it was decided to expand the sampling intervals to 1.5 feet each (i.e., 5-6.5 feet bgs and 1.5 feet above groundwater encounter) to ensure enough soil for sampling.

Suburface soil sampling analytical results are presented and discussed in Section 4.2 of this report.

3.3.3 Groundwater Sampling

Subsurface groundwater samples at Locations 003, 004, and 005 were collected as discrete, grab samples from the Geoprobe borehole using a screen point sampler. The screen point sampler was placed into the borehole approximately three feet into the saturated zone, opened, and the groundwater level was allowed to equilibrate. After equilibration, groundwater samples were collected as dictated in the EPA-approved QAPP and SAP. Groundwater sampling was attempted at Location 002; however, this location produced very little water in the screen point sampler. After approximately 30 minute with inadequate water production, Booz Allen decided to abandon the borehole at Location 002 without collecting a groundwater sample.

3.3.3.1 Water Level Measurements

A small-diameter (0.25-inch diameter) water level probe was lowered into the screen point sampler to determine depth to water prior to groundwater purging. These depths were measured to the nearest 0.01 feet and recorded in the field logbook or sampling forms. This data is listed in Table 3 below.

3.3.3.2 Groundwater Purging

The groundwater samples were collected as grab samples from a Geoprobe screen point sampler. As such, traditional purging was not performed. However, after equilibration, approximately one gallon of groundwater was purged prior to sample collection. Teflon tubing was used for groundwater sampling, since VOCs are a contaminant of concern. At each location, the tubing (3/16-inch inner diameter; 1/4-inch outer diameter) was inserted through the screen point sampler and connected to a peristaltic pump with silicone tubing. The flow rate was set to approximately 150-250 milliliters per minute (mL/min), and the groundwater sampling point was purged. At periodic intervals, groundwater purging parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, oxidation/reduction potential) were measured using a Horiba U-52 multi-parameter probe and a flow-through cell. The groundwater parameter measurements were recorded in the field logbooks, and are presented in Table 3 below.

Table 3. Groundwater Monitoring Parameters

Loc.	Time	Water Level	Flow Rate	Temp	pH	D.O.	Turb.	Cond.	ORP
002	1442	Initial water level: 15.11 feet bgs.							
	1152	Pump started. Purged dry after recovering less than 0.5 liters.							
	1230	Restarted pump. Purged dry after recovering approximately 0.1 liters. Silty clay aquifer is not allowing groundwater to fill screen point sampler. Borehole abandoned without sample collection.							
003	1040	Initial water level: 13.63 feet bgs.							
	1049	Pump started.							
	1054	--	200	21.80	5.87	3.34	277	9.79	98
	1059	--	200	23.09	5.98	5.75	177	10.2	101
	1106	Purged dry. Pump shut down to allow recharge							
	1129	Groundwater recharged. Begin sampling. Total purged = approximately 0.5 gallons.							
004	0835	Initial water level: 4.17 feet bgs							
	0855	Pump started.							
	0907	--	150	22.51	5.81	5.73	>800	8.75	65
	0912	--	150	21.64	5.63	5.32	750	8.62	94
	0917	--	125	21.25	5.60	4.95	243	8.60	105
	0922	--	125	21.05	5.52	4.59	56.9	8.62	112
	0923	Began sampling. Total purged = approximately 1 gallon.							
005	1430	Initial screen point setting within saturated zone (~15-19 feet bgs) not producing water. Screen point withdrawn and new borehole advanced to approximately 27 feet bgs. Screen noted to be covered in thick silt when withdrawn. Screen decontaminated prior to re-use.							
	1513	After resetting screen point, initial water level: 22.2 feet bgs.							
	1516	--	200	26.99	7.13	1.66	>1,000	3.42	-62
	1521	--	100	22.84	6.90	1.29	>1,000	3.55	-69
	1526	--	100	24.23	6.77	2.69	765	3.57	-64
	1529	Began sampling. Total purged = approximately 0.5 gallons.							

Notes: Water level is feet below ground surface (bgs); flow rate in ml/minute; temp is temperature in degrees Centigrade (ºC); pH is in Standard Units (S.U); D.O is dissolved oxygen in milligrams per liter (mg/L); turb is turbidity in Nephelometric Turbidity Units (NTU), cond is conductivity in microSiemens per centimeter (µS/cm); ORP is oxidation/reduction potential in millivolts (mV).

Purged groundwater was collected in a five-gallon bucket and disposed on the ground onsite after the collection of the groundwater samples. The purged groundwater was allowed to seep back into the ground (i.e., no surface runoff occurred).

3.3.3.3 Groundwater Sample Collection

After monitoring well recharge, groundwater samples were collected following the procedures described in the EPA-approved QAPP and SAP. To minimize the potential for cross-contamination, fractions were collected and containerized in the following order of volatilization sensitivity of the analytes of interest:

- VOCs
- Metals

VOC samples were collected after removing the Horiba U-52 multi-parameter meter and flow-through cell from the sampling train. The peristaltic pump was used to fill the appropriate sample containers (two 40-mL sample vials per VOC sample). Two drops of hydrochloric acid

were added to each sample vial immediately prior to sample collection. After filling VOC sample vials, each vial was inverted and checked for air bubbles to insure zero headspace. If an air bubble appeared, the vial contents were emptied, the vial discarded, and a new sample was collected. The VOC sample containers were then labeled, taped, containerized in empty cubitainers, and placed in a sample cooler with ice.

After the collection of VOC samples, groundwater samples for total metals were collected in a single, 1-liter cubitainer (preserved with nitric acid). After collection, the metals sample containers were sealed, labeled, taped, and placed in a sample cooler with ice.

As shown in Table 3, the groundwater samples were moderately turbid. The potential effects of this turbidity are discussed in Sections 4.3 and 5.2 of this report. Groundwater sampling analytical results are presented and discussed in Section 4.3 of this report.

3.3.3.4 QC Sample Collection

The QC samples listed in Table 2 were also collected. Duplicate samples (two soil duplicates, one groundwater duplicate) were collected at the same location/interval as the normal samples, in the same manner. Triplicate volumes were collected for select VOC samples for MS/MSD samples (two, total). Equipment blanks (one for Geoprobe soil sampling equipment, one for hand auger, one for Geoprobe screen point sampler) were collected by pouring deionized water (supplied by the EPA Region 7 Laboratory) over freshly-decontaminated sampling equipment, then transferring the water into sample containers.

In addition, a trip blank (prepared by the EPA Region 7 Laboratory) was placed in the sample cooler used for VOC sample storage/shipment. It should be noted that, during labeling, one of the two, pre-prepared trip blank vials broke. As such, only one trip blank vial accompanied the VOC samples.

The results of the blank QC sampling (equipment blanks and trip blank) are presented in Sections 4.1 of this report. The results of the duplicate sampling are presented in Sections 4.2 and 4.3, as applicable.

3.3.3.5 Equipment Decontamination

Decontamination of sampling equipment was conducted prior to and after each sampling location as prescribed in REPA4 SOP T-3: *Equipment Decontamination* to assure the quality of samples collected. Disposable equipment intended for one time use (e.g., groundwater sampling tubing) was not decontaminated but was packaged for appropriate disposal. Additionally, all equipment that was reused (e.g., stainless steel spoons and bowls) was decontaminated prior to each use and if it came in contact with any potentially-contaminated media.

Equipment was decontaminated in a pre-designated area, and clean bulky equipment was stored on plastic sheeting in uncontaminated areas. Cleaned small equipment was stored in plastic bags. Materials stored for more than a few hours were also covered.

3.3.3.6 Borehole Abandonment

All soil boreholes were abandoned as prescribed in REPA SOP T-5: *Monitoring Well Installation* and in accordance with state and local requirements. Location 001 and all associated exploratory boreholes were abandoned by placing soil cuttings and overburden back into the boreholes. Locations 002 through 005 were advanced through concrete or asphalt paving. At these locations, the borings were grouted to near surface with solid bentonite. Fresh concrete was mixed and used to restore the paving at ground surface.

3.3.3.7 IDW Management

Per the PWS and TOP, soil cuttings and decontamination fluids investigation-derived waste (IDW) were left onsite. Groundwater was allowed to percolate back into the ground after sample collection. Booz Allen containerized and removed other IDW, such as used personal protective equipment (PPE) and used sampling supplies, for proper offsite disposal.

3.4 SAMPLE HANDLING AND CUSTODY

For all samples collected at this site, the chain-of-custody and sample storage requirements of SW-846 were followed. The locations sampled, observations, number and type of containers, and requested analyses were recorded in the field notebook, Sample Collection Field Sheets, chain-of-custody form, and Sampling Report. These QA/QC records were and will be managed and retained as prescribed in the REPA4 QMP.

Per the PWS, Booz Allen inform the site representative of his right to collect split samples during the site sampling activity. The site representative did not request that split samples be collected.

Booz Allen ensured the integrity and security of all samples under REPA4 control using a stringent chain-of-custody protocol comparable to the chain-of-custody protocol specified in the CLP program. Immediately following collection, samples were placed on ice in a cooler and remained refrigerated until prepared for shipment to the laboratory. Strict chain-of-custody procedures were followed and the samples remained in Booz Allen custody from sample collection (Friday, August 27, 2010) through the weekend. Sample coolers were only opened on August 28 and 29, 2010 to add new ice, and were subsequently re-sealed. The sample coolers were delivered to the EPA Region 7 Laboratory on Monday, August 30, 2010 with the chain-of-custody intact. A copy of the chain-of -custody form is included in Appendix E.

It should be noted that only one set of trip blanks was provided by the EPA Region 7 Laboratory for this site (of which, one vial broke in the field). However, two sample coolers were needed to hold all of the samples collected at this site. Because of this, one sample cooler (containing the trip blank) was dedicated to VOC samples, and the other was dedicated to non-VOC samples.

3.5 DEVIATIONS FROM THE QAPP AND/OR SAP

The following deviations from the EPA-approved QAPP and/or SAP occurred during the sampling at this site.

- QAPP Section 2.7.1 (page 2-10) and SAP Section 3.1 (page 3-1) and Section 3.1 Table 2 (page 3-2). These sections describe the collection of triplicate sample volumes for MS/MSD analyses. However, the ASRs provided by the EPA Region 7 Laboratory (included in Appendix G) state that only triplicate volumes are needed for VOC analyses. Per the ASR, the sample volume of the total metals samples are large enough that additional sample volume is not needed for MS/MSD analyses. Therefore, triplicate sample volumes were not collected for total metals samples. As the sample volumes proved to be enough for MS/MSD analyses, this deviation from the QAPP and SAP does not affect data quality.
- SAP Section 3.1, Table 1 (page 3-1). Due to concerns about the possible presence of underground utilities, subsurface soil and groundwater sampling at Location 001 was not performed as listed in the SAP. Additionally, the surface soil sample interval was adjusted to include the entire borehole depth (0-12 inches bgs). The lack of subsurface soil sampling at Location 001 will affect the data quality, as no other subsurface samples were collected at or near this location. The extended surface soil sampling interval will not adversely affect the data quality of this sample.
- SAP Section 3.1, Table 1 (page 3-1). Table 1 lists the collection of a groundwater sample at Location 002. As discussed above, the thick silt in the saturated zone did not allow adequate groundwater to enter the screen point for sampling. A groundwater sample at Location 002 was not collected. This location is the most downgradient sample location, but other groundwater samples were collected in the immediate vicinity. Therefore, this omission does not adversely affect data quality.
- SAP Section 3.1, Table 1 (page 3-1). Table 1 lists the subsurface soil sampling intervals for Locations 002 through 005 as 5-6 feet bgs and 6 inches above groundwater encounter. The sampling intervals were changed to a total length of 1.5 feet in the field to ensure enough soil for all sample containers (i.e., intervals of 5-6.5 feet bgs and 1.5 feet above groundwater encounter). This deviation from the SAP does not affect data quality.
- QAPP Section 3.2.6.4 (page 3-13) and SAP Section 3.2.6 (page 3-7). These sections describe the inclusion of a temperature blank in the sample coolers to allow the EPA Laboratory to verify sample temperatures upon receipt. Per a discussion with EPA Laboratory personnel, a temperature blank is not required. Therefore, these QA samples were not prepared and sent with the sample coolers. This deviation from the QAPP and SAP does not affect data quality, as sample temperatures are measured directly from the coolers upon receipt.
- SAP Section 3.2.6 (page 3-7). This section describes the inclusion of a set of trip blanks in the VOC sample coolers. However, during labeling of the trip blank vials at the start of the sampling day, one of the vials broke. The EPA Region 7 Laboratory was notified of this incident, and instructed Booz Allen to include the one, remaining trip blank vial in the sample cooler. This deviation from the QAPP and SAP does not affect data quality, as the single trip blank vial proved sufficient for analysis.
- SAP, Section 3.2.1 (page 3-3). This and subsequent sections of the SAP describe the collection of subsurface soil samples using a Geoprobe direct-push unit. As described in Section 3.3 of this report, Booz Allen decided to use a hand auger for borehole advancement at Location 001 due to potential underground utility concerns. This deviation from the approved SAP does not affect data quality

- SAP, Section 3.2.3 (page 3-5). This and subsequent sections of the SAP describe the purging of at least one gallon from the screen point sampler prior to groundwater sample collection. Due to poor groundwater production at Locations 003 and 005, only approximately 0.5 gallons of groundwater were purged at these locations prior to sampling. This deviation does not adversely affect data quality, as the boreholes were purged dry, allowed to recharge, and sampled.

4. ANALYTICAL RESULTS

Analytical results were received by Booz Allen on October 6, 2010. The following sections present the results of the QA, soil, and groundwater sampling conducted on August 27, 2010.

4.1 QA SAMPLE RESULTS

Table 4, below, presents the analytical results of the three equipment blank (EB) samples collected on August 27, 2010, as well as the trip blank.

Table 4. Flexsteel, Field QA Sample Results (µg/L)

Analyte	Soil EB (Geoprobe); FI-01-EB-001 (5006-107)	Soil EB (Auger); FI-02-EB-001 (5006-108)	Groundwater EB FI-03-EB-001 (5006-109)	Trip Blank; FI-01-TB-001 (5006-110FB)
VOCs (RLAB Method 3230.1F)				
Acetone	10 UJ	10 UJ	10 UJ	10 UJ
Benzene	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	5.0 U	5.0 U	5.0 U	5.0 U
Bromomethane	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	5.0 U	5.0 U	5.0 U	5.0 U
Ethyl Benzene	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Isopropylbenzene	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	10 U	10 U	10 U	10 U
Methylcyclohexane	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	5.0 U	5.0 U	5.0 U	5.0 U

Analyte	Soil EB (Geoprobe); FI-01-EB-001 (5006-107)	Soil EB (Auger); FI-02-EB-001 (5006-108)	Groundwater EB FI-03-EB-001 (5006-109)	Trip Blank; FI-01-TB-001 (5006-110FB)
4-Methyl-2-Pentanone	5.0 U	5.0 U	5.0 U	5.0 U
Naphthalene	10 U	10 U	10 U	10 U
Styrene	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	5.0 U	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	5.0 U	5.0 U	5.0 U	5.0 U
m and/or p-xylene	10 U	10 U	10 U	10 U
o-xylene	5.0 U	5.0 U	5.0 U	5.0 U
Metals (RLAB Method 3123.1C)				
Antimony	10.0 U	10.0 U	10.0 U	NA
Arsenic	5.0 U	5.0 U	5.0 U	NA
Barium	25.0 U	25.0 U	25.0 U	NA
Beryllium	5.0 U	5.0 U	5.0 U	NA
Cadmium	5.0 U	5.0 U	5.0 U	NA
Chromium	10.0 U	10.0 U	10.0 U	NA
Cobalt	5.0 U	5.0 U	5.0 U	NA
Copper	10.0 U	10.0 U	10.0 U	NA
Lead	5.0 U	5.0 U	5.0 U	NA
Manganese	5.0 U	5.0 U	5.0 U	NA
Nickel	5.0 U	5.0 U	5.0 U	NA
Selenium	25.0 U	25.0 U	25.0 U	NA
Silver	5.0 U	5.0 U	5.0 U	NA
Thallium	5.0 U	5.0 U	5.0 U	NA
Vanadium	5.0 U	5.0 U	5.0 U	NA
Zinc	10.0 U	10.0 U	**11.8**	NA

µg/L = micrograms per liter; RL = Reporting Limit; EB = Equipment Blank; U = Not detected at or above RL; NA = Not Analyzed; UJ = Not detected at or above RL and RL is an estimate.
Bold = Analyte detected above Reporting Limit

As shown in Table 4, zinc was detected in the Groundwater EB at 11.8 µg/L. The zinc detection, which is slightly higher that the reporting limit of 10.0 µg/L, does not appear to be the result of inadequate decontamination because no other COCs were detected in the Groundwater EB. Zinc was detected in groundwater samples collected at the site. However, as shown in Section 5.2, the maximum zinc detection was significantly below the Tap Water RSL screening criterion. Therefore, the 11.8 µg/L of zinc detected in the Groundwater EB is deemed to be insignificant.

No COCs were detected in the two Soil EBs or the trip blank. In addition, no significant QA issues were reported with the laboratory QA analyses.

4.2 SOIL SAMPLE RESULTS

Table 5 below presents the analytical results of the surface and subsurface soil samples collected on August 27, 2010.

Table 5. Flexsteel, Soil Sample Results (mg/kg)

[Table 5, page 2]

As shown in Table 5, the only VOC detections in soil samples were trace detections of methylcyclohexane and toluene in the surface soil samples collected from Location 001, and trace acetone detections in the remaining samples. Each of the detections is included in the soil screening in Section 5.1 of this report. However, it should be noted that acetone is a common laboratory solvent and its detection may be the result of routine sample processing in the laboratory environment.

Barium, cadmium, and chromium were detected in all soil samples. These COCs were generally detected at similar concentrations from Locations 002 through 005, and slightly different at Location 001. In addition, lead was detected in Location 001 soil. Risk screening analyses for these detected COCs are presented in Section 5.1 of this report.

It should be noted that, although no public or private utilities were reported to be present near Location 001, three attempts with a hand auger met PVC piping and/or utility-grade trench fill material at approximately one foot bgs. A fourth boring was advanced to sample the 0-12 inch bgs interval, and no further advancement was attempted. Therefore, the planned 1-2 feet bgs, 4-5 feet bgs, and 6 inches above water table soil intervals at Location 001 were not sampled. No visual evidence of solvent disposal (e.g., staining, stressed vegetation) were observed in the area of Location 001.

4.3 GROUNDWATER SAMPLE RESULTS

Table 6 below presents the analytical results of the groundwater samples collected on August 27, 2010.

Table 6. Flexsteel, Groundwater Sample Results (µg/L)

Analyte	Loc 003; FI-01-GW-003 (5006-104)	Loc 004 FI-01-GW-004 (5006-105)	Loc 005; FI-01-GW-005 (5006-106)	Loc 005-Dup; FI-02-GW-005 (5006-106FD)
VOCs (RLAB Method 3230.1F)				
Acetone	10 UJ	10 UJ	10 UJ	10 UJ
Benzene	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	5.0 U	5.0 U	5.0 UJ	5.0 U
Bromomethane	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	5.0 U	5.0 U	5.0 UJ	5.0 U
1,2-Dibromoethane	5.0 U	5.0 U	5.0 UJ	5.0 U
1,2-Dichlorobenzene	5.0 U	5.0 U	5.0 UJ	5.0 U
1,3-Dichlorobenzene	5.0 U	5.0 U	5.0 UJ	5.0 U

Analyte	Loc 003; FI-01-GW-003 (5006-104)	Loc 004 FI-01-GW-004 (5006-105)	Loc 005; FI-01-GW-005 (5006-106)	Loc 005-Dup; FI-02-GW-005 (5006-106FD)
1,4-Dichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	5.0 U	5.0 U	5.0 UJ	5.0 U
Ethyl Benzene	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Isopropylbenzene	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	10 U	10 U	10 U	10 U
Methylcyclohexane	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	5.0 U	5.0 U	5.0 UJ	5.0 U
Naphthalene	10 U	10 U	10 U	10 U
Styrene	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5.0 U	5.0 U	5.0 UJ	5.0 U
Tetrachloroethene	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	5.0 U	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	5.0 U	5.0 U	5.0 UJ	5.0 U
Trichloroethene	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	5.0 U	5.0 U	5.0 U	5.0 U
m and/or p-xylene	10 U	10 U	10 U	10 U
o-xylene	5.0 U	5.0 U	5.0 U	5.0 U
Metals (RLAB Method 3123.1C)				
Antimony	10.0 U	10.0 U	10.0 U	10.0 U
Arsenic	**18.4**	**15.0**	**5.6**	5.0 U
Barium	**1750**	**1250**	**901**	**882**
Beryllium	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	**40.4**	**28.9**	5.0 U	5.0 U
Chromium	10.0 U	10.0 U	10.0 U	10.0 U
Cobalt	**19.2**	**5.5**	5.0 U	5.0 U
Copper	10.0 U	10.0 U	10.0 U	10.0 U
Lead	5.0 U	5.0 U	5.0 U	5.0 U
Manganese	**2730**	**3270**	**2840**	**3610**
Nickel	**397**	**409**	**19.0**	**16.5**
Selenium	25.0 U	25.0 U	25.0 U	25.0 U
Silver	5.0 U	5.0 U	5.0 U	5.0 U
Thallium	5.0 U	5.0 U	5.0 U	5.0 U
Vanadium	**26.8**	**30.5**	**18.5**	**14.4**

Analyte	Loc 003; FI-01-GW-003 (5006-104)	Loc 004 FI-01-GW-004 (5006-105)	Loc 005; FI-01-GW-005 (5006-106)	Loc 005-Dup; FI-02-GW-005 (5006-106FD)
Zinc	**76.4**	**98.8**	10.0 U	10.0 U

µg/L = micrograms per liter; RL = Reporting Limit; U = Not detected at or above RL; NA = Not Analyzed;
UJ = Not detected at or above RL and RL is estimated. **Bold = Analyte detected above Reporting Limit**

As shown in Table 6, no VOCs were detected in groundwater samples. However, arsenic, barium, cadmium, cobalt, manganese, nickel, vanadium, and zinc were detected in one or more groundwater samples. These total metals results are discussed further in Section 5.2 of this report

It should be noted that, since subsurface sampling was not performed at Location 001, the associated groundwater sample planned for this location was also not collected. A groundwater sample at Location 002 was also not collected due to poor water production in the screen. As such, the only groundwater samples collected at the site were from Locations 003 through 005.
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5. RISK SCREENING ANALYSIS

5.1 SOIL SCREENING RESULTS

Tables 7a and 7b below present the soil detections screened against the May 2010 EPA Regional Screening Levels (RSLs). During the review of the analytical data, it was noted that the detected COC concentrations at Location 001 varied slightly from the concentrations at Locations 002 through 005. It was also noted that the concentrations of detected COCs were relatively low. Therefore, for screening purposes, the maximum detected concentration of each analyte is used to conservatively determine the site risk. Table 7a presents the screening against Industrial RSLs, and Table 7b presents the screening against Residential RSLs.

The RSLs are based on 1 x 10^{-6} and 1 x 10^{-4} incremental individual lifetime cancer risks for carcinogenic COCs or a Hazard Quotient (HQ) of 1.0 for noncarcinogenic COCs. For each detected COC, the individual cancer risk and/or noncancer risk is calculated in Tables 7a and 7b. The sum of cancer and noncancer risks are also provided in the tables below.

Table 7a. Flexsteel Industries, Soil Results Screening Against Industrial RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
VOCs							
Acetone	mg/kg	0.081	--	6.3E+05	--	--	0.000
Methylcyclohexane	mg/kg	0.0076	--	--	--	--	--
Toluene	mg/kg	0.0091	--	4.5E+04	--	--	0.000
Metals							
Barium	mg/kg	154	--	1.9E+05	--	--	0.001
Cadmium	mg/kg	4.6	9.3E+03	8.0E+02	0.000	0.000	0.006
Chromium (VI)	mg/kg	21.1	5.6E+00	3.1E+03	3.768	0.038	0.007
Lead	mg/kg	35.8	--	8.0E+02	--	--	0.045
				Cumulative Risk:	3.768	0.038	0.058

As shown in Table 7a above, the trace concentrations of VOCs at the site have negligible effect on the cumulative noncarcinogenic risk.

The maximum chromium detection listed in Table 7a exceeds the 1 x 10^{-6} carcinogenic screening levels. However, the chromium concentration detected at the site was total chromium. Based on the operations conducted at Flexsteel, it is likely that the total chromium detected at the site is predominantly chromium (III). To be conservative, the more toxic chromium (VI) screening level was selected for Table 7a. Even with this conservative approach, the detected concentration of chromium does not individually exceed the 1 x 10^{-4} screening level.

For the noncarcinogenic COCs, none were detected at concentration individually exceeding the Industrial screening criteria. The cumulative HQ for all detected noncarcinogenic COCs is well below 1.0.

Table 7b. Flexsteel Industries, Soil Results Screening Against Residential RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
VOCs							
Acetone	mg/kg	0.081	--	6.1E+04	--	--	0.000
Methylcyclohexane	mg/kg	0.0076	--	--	--	--	--
Toluene	mg/kg	0.0091	--	5.0E+03	--	--	0.000
Metals							
Barium	mg/kg	154	--	1.5E+04	--	--	0.010
Cadmium	mg/kg	4.6	1.8E+03	7.0E+01	0.003	0.000	0.066
Chromium (VI)	mg/kg	21.1	2.9E-01	2.3E+02	72.759	0.728	0.092
Lead	mg/kg	35.8	--	4.0E+02	--	--	0.090
				Cumulative Risk:	72.761	0.728	0.257

As shown in Table 7b above, the concentrations of VOCs detected in site soils have negligible effect on the cumulative noncarcinogenic risk.

The chromium detection listed in Table 7b exceeds its 1 x 10^{-6} carcinogenic screening level. However, as described above, the chromium concentration at the site is not likely to be exclusively chromium (VI). Even with conservative screening against the chromium (VI) criterion, the detected chromium does not exceed its 1 x 10^{-4} screening level.

For the noncarcinogenic metals, none were detected at a concentrations individually exceeding their screening criteria. The cumulative HQ for all noncarcinogenic COCs is below well below 1.0.

Based on Tables 7a and 7b, none of the COCs detected at the site individually or cumulatively exceed Industrial or Residential RSLs (1 x 10^{-4} carcinogenic risk level and 1.0 HQ).

5.2 GROUNDWATER SCREENING RESULTS

Table 8 below present the groundwater detections screened against the May 2010 EPA Regional Screening Levels (RSLs). All groundwater samples were collected from the same general area at Flexsteel. Therefore, for screening purposes, the maximum concentration of each analyte is used to determine the site risk. Table 8 presents the contaminant screening against Tap Water RSLs.

The Tap Water RSLs are based on 1 x 10^{-6} and 1 x 10^{-4} incremental individual lifetime cancer risks for carcinogenic COCs, an HQ of 1.0 for noncarcinogenic COCs, or the EPA Maximum Contaminant Level (MCL). For each detected COC, the individual cancer risk and/or noncancer risk is calculated in Table 8. The sum of cancer and noncancer risks are also provided in the tables below.

Table 8. Flexsteel Industries, Groundwater Results Screening Against Tap Water RSLs

Detected Analyte	Units	Maximum Concentration	RSL Cancer	RSL Noncancer	Cancer Risk (1x10^6)	Cancer Risk (1x10^4)	Noncancer Risk (HQ=1)
Metals							
Arsenic	µg/L	18.4	4.5E-02	1.1E+01	408.889	4.089	1.673
Barium	µg/L	1750	--	7.3E+03	--	--	0.240
Cadmium	µg/L	40.4	--	1.8E+01	--	--	2.244
Cobalt	µg/L	19.2	--	1.1E+01	--	--	1.745
Manganese	µg/L	3610	--	8.8E+02	--	--	4.102
Nickel	µg/L	409	--	7.3E+02	--	--	0.560
Vanadium	µg/L	30.5	--	1.8E+02	--	--	0.169
Zinc	µg/L	98.8	--	1.1E+04	--	--	0.009
				Cumulative Risk:	408.889	4.089	10.743

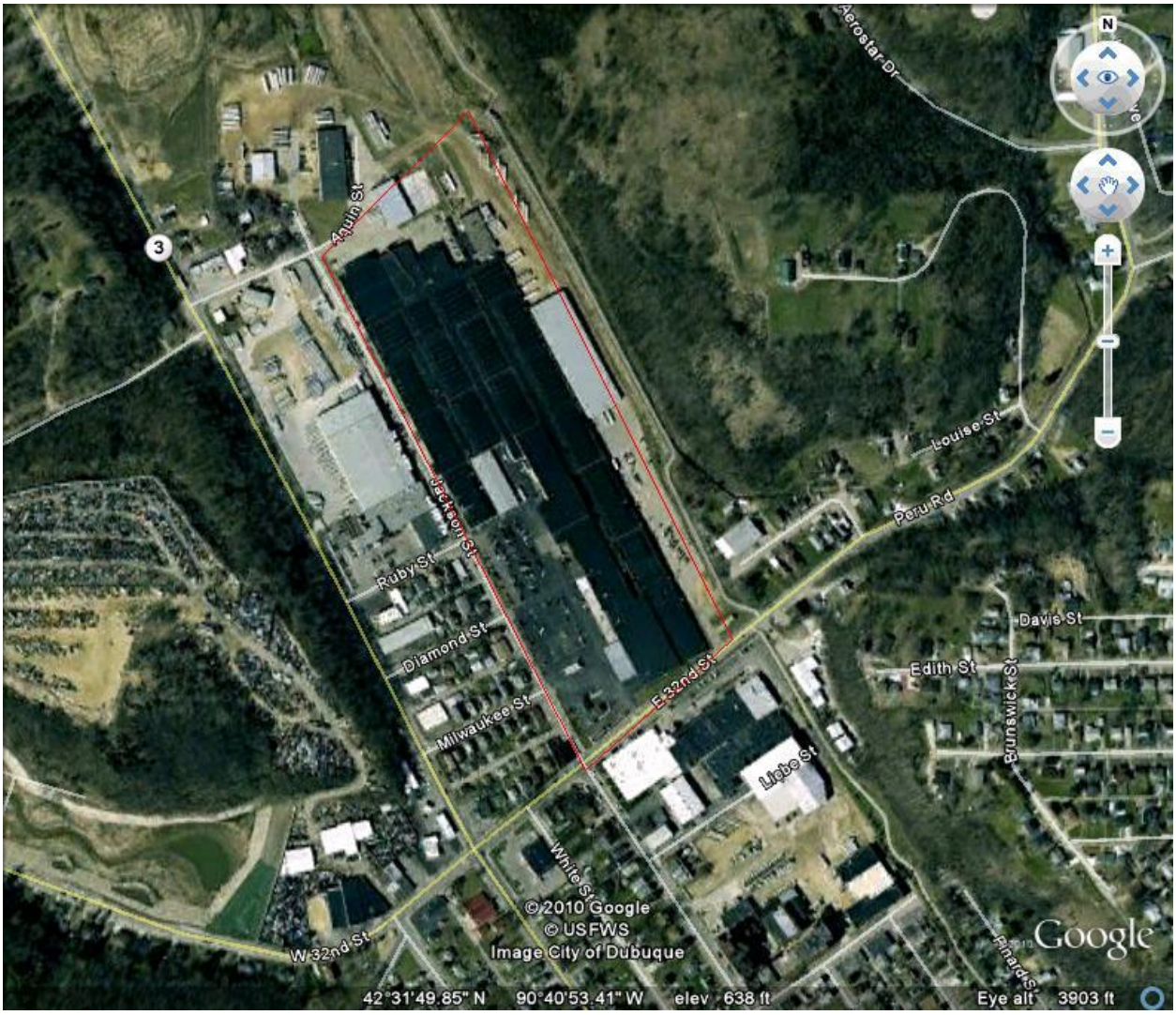
Several RCRA metals were detected in the groundwater samples. As shown in Table 8, the arsenic detection exceeds its 1 x 10^{-4} carcinogenic screening level. For the noncarcinogenic metals, arsenic, cadmium, cobalt, and manganese exceed their respective screening levels. The cumulative HQ for all detected noncarcinogenic COCs is greater than 1.0.

It should be noted that the groundwater samples were moderately turbid with silt (See Table 3). The increased turbidity is likely a significant cause of elevated metals detections in groundwater.

5.3 POTENTIAL RISK RECEPTORS

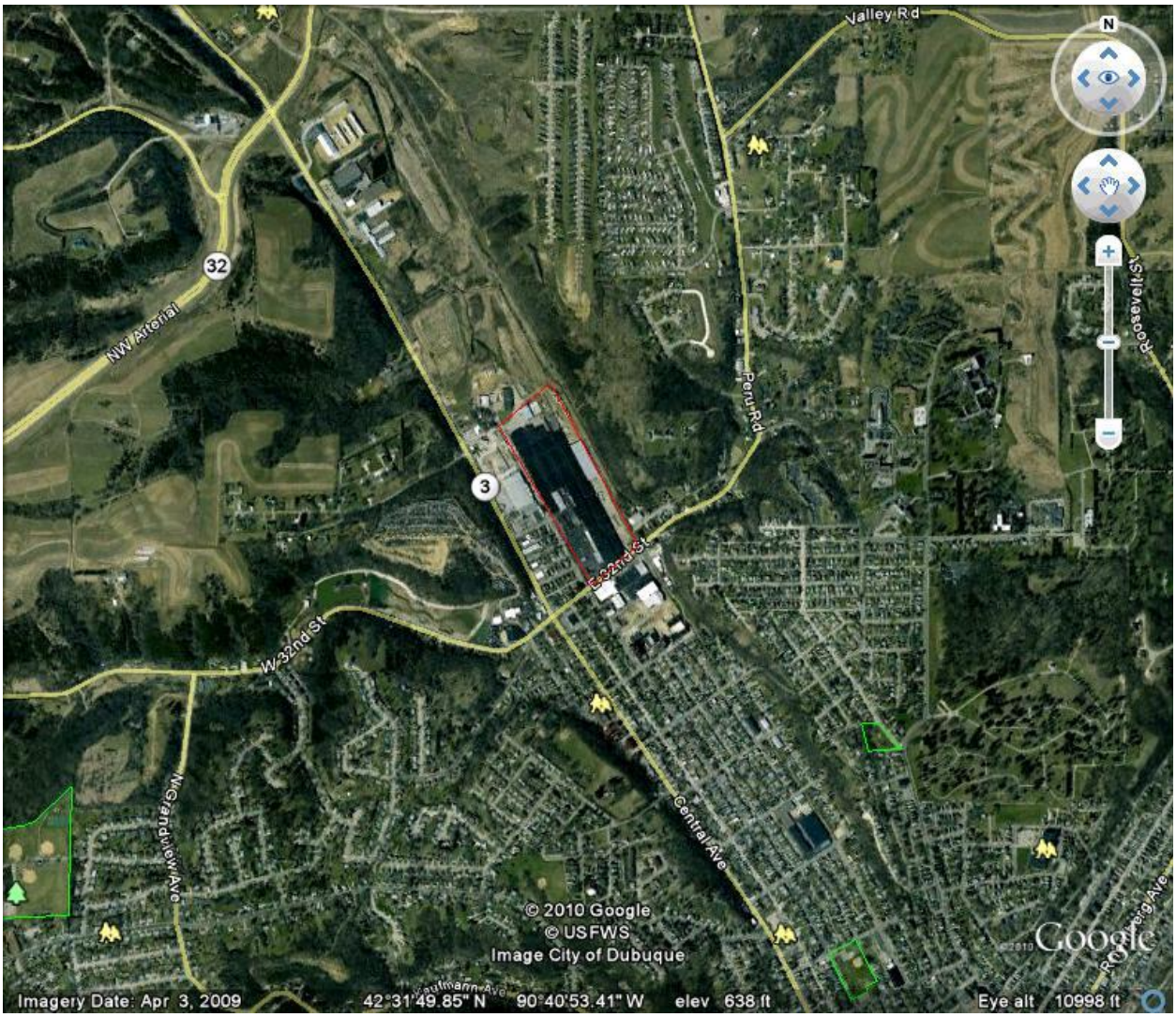
5.3.1 Adjacent Properties

The Flexsteel lot occupies approximately 30 acres of land, according to the Dubuque County Assessor's webpage (www.dubuquecounty.org/CountyAssessor/tabid/74/Default.aspx). Buildings occupy approximately 60 percent of the lot, and the majority of the remaining land is gravel-covered or paved. The Flexsteel lot is zoned industrial. The property to the immediate north and east of the Flexsteel lot is largely undeveloped. The property to the immediate west and south of the Flexsteel lot is residential and commercial. An aerial map from Google Earth, showing the neighboring property, is included as Map A below.



Map A. Google Earth Aerial. Scale: 1 inch = approximately 600 feet.

Booz Allen also used Google Earth Public to identify public use areas within approximately one mile of the site. Public use areas, such as schools, parks/recreation areas, and hospitals, are shown on Map B below.



Map B. Google Earth Aerial. Scale: 1 inch = approximately 1,800 feet.

A summary of the sites shown on Map B is included in Table 9 below.

Table 9. Public Use Areas Near Flexsteel

Area	Distance From Site	Direction
East Stone Hill School	~4,000 feet	NE
West Stone Hill School	~6,000 feet	NW
Veterans Memorial Park	~5,700 feet	WSW
Mazzuchelli Catholic Middle School	~6,000 feet	SW
Holy Ghost Catholic School	~1,750 feet	S
Fulton Elementary School	~4,500 feet	SSE
Comiskey Field	~5,000 feet	SSE
Burden Field	~3,500 feet	SE
Thomas Jefferson Middle School	~5,600 feet	SE

Note: distance is measured from approximate area of Location 002 through Location 005.

5.3.2 Potential Soil Risk Receptors

Sampling Location 001 is within a graveled parking/loading area. The area is secured with a locked gate and fence to prevent unauthorized access. In addition, the gravel cover acts as a cap that hinders soil contact/migration. It appears that the only potential onsite soil risk receptors in this area are workers and construction workers. Offsite risk receptor pathways do not appear to be complete.

Sampling Locations 002 through 005 are within a paved parking lot/loading area. Residential land use areas are located to the west and south, as shown in Map A above. However, the asphalt and concrete pavement acts as a cap that prevents soil contact/migration. It appears the only potential receptors for soils at Locations 002 through 005 are onsite construction workers. Offsite risk receptor pathways are incomplete.

5.3.3 Potential Groundwater Risk Receptors

Flexsteel is located atop an alluvial surficial aquifer consisting of soil and unconsolidated, unaltered sediments in the form of buried channels and alluvium. The groundwater table beneath the site varies from 10 to 20 feet below ground surface (bgs). Wells installed in this aquifer typically produce high yields. Based on modeling conducted in 1990, groundwater flow at the Flexsteel site is to the west (toward the Coule Valley), then southeast toward the Mississippi River. The City of Dubuque uses groundwater as its potable water supply. The Municipal Well field is located approximately 1.5 miles southeast of the Flexsteel site.

Booz Allen contacted the IDNR, Iowa Geological and Water Survey section (IGS) to request identification of all groundwater wells within a one-mile radius of the Flexsteel site. The Location 002 through 005 area was selected as the search center point. The search results received from the Iowa Geological and Water Survey include a map and well information from various State databases. These results are included in Appendix C. Table 10 presents a summary of the well search.

Table 10. Groundwater Wells Within One Mile of the Flexsteel Site

Owner	ID	Database	Database Type	Distance from Site*	Other Information**
Maxine Hoag Estate, c/o Jean Mastin	27457	PLUG	Registered abandoned wells database	~0.25 mi. NE	Well plugged. Well type: <18" diameter
Jim Christensen	2079518	PWTS	Private Well Tracking System well	~0.45 mi. ENE	Well plugged. Well use: household
Peru Club	2365	GEOU	IGS well database	~0.75 mi. NE	Bedrock depth: 15'. Well type: private
Dubuque Shooting Society	2411123	SDWI	Safe Drinking Water Information System well	~0.5 mi. NW	Well #2. Status: active
Dubuque Shooting Society	37039	GEOU	IGS well database	~0.5 mi. NW	Well #1. Status: active
Dubuque Shooting Society	2409219	SDWI	Safe Drinking Water Information System well	~0.5 mi. NW	Plug #1. Status: inactive

Owner	ID	Database	Database Type	Distance from Site*	Other Information**
Lime Rock Springs Company	47003	GEOU	IGS well database	~0.8 mi. NW	Well type: commercial
Iowa Department of Transportation	47082	PLUG	Registered abandoned wells database	~0.8 mi. NW	Parcel #26. Well plugged. Well type: <18" diameter
State of Iowa	46283	PLUG	Registered abandoned wells database	~0.8 mi. NW	Well plugged. Well type: not reported
Iowa Department of Transportation	47083	PLUG	Registered abandoned wells database	~0.8 mi. NW	Parcel #27. Well plugged. Well type: <18" diameter
Unknown	12359	PVTP	Permitted private well database	~0.9 mi. WNW	Primary use: Domestic/household
Herman Nauman	14580	GEOU	IGS well database	~0.55 mi. W	Bedrock depth: 15'. Well type: private
Tom Baffelli	14795	GEOU	IGS well database	~0.55 mi. W	Bedrock depth: 15'. Well type: private
Unknown	12380	PVTP	Permitted private well database	~0.6 mi. W	Primary use: domestic/household
Jack Brandal	14681	GEOU	IGS well database	~0.6 mi. W	Bedrock depth: 15'. Well type: private
Paul Ehrlich	57716	GEOU	IGS well database	~0.9 mi. W	Bedrock depth: 14'. Well type: private
Paul Ehrlich	2092925	PWTS	Private Well Tracking System well	~0.9 mi. WSW	Status: retired. Well use: household
Flexsteel Industries, Inc.	36744	GEOU	IGS well database	Onsite	Well type: Public access, commercial
Flexsteel Industries, Inc.	2410801	SDWI	Safe Drinking Water Information System well	Onsite	Well #1. Status: inactive
Dubuque Stamping & Manufacturing, Inc.	9656	WTRU	Water Use Permit well database	~0.16 mi. SE (potentially downgradient)	Primary use: industrial cooling
Nick DeMaio	2142592	PWTS	Private Well Tracking System well	~0.9 mi. SE (potentially downgradient)	Status: permitted. Well use: heat pump

* = Approximate distance, in miles, from the search radius source
** = Other relevant information from the database search (if reported).

Two of the listings in Table 10 correspond to onsite wells owned by Flexsteel. A further search of the online IGS GEOSAM database found that Well ID #36744 has a total depth of 667 feet. The last static water level reported was 21.3 feet (pumping water level of 25.9 feet), and its yield is listed as 400 gallons per minute (gpm). Well ID #2410801 could not be located in the online Safe Drinking Water Information System (SDWIS) database.

Two of the listings in Table 10 correspond to offsite wells that are downgradient from the Flexsteel site. The online Water Use Permit (WTRU) database shows that Well ID #9656 has been issued Water Use Permit 4885, authorizing Dubuque Stamping & Manufacturing, Inc. (32nd and Jackson, Dubuque, IA 52001; PO Box 798, Dubuque, IA 52004-0798) to use 50 million gallons per year (mgy) for industrial cooling. The water level is listed as 23 feet, and the pump rate is listed as 200 gpm. The online Private Well Tracking System (PWTS) database lists contact information for the owner (2542 Stafford Street, Dubuque, IA 52001) of Well ID #2142592, but does not contain any further information.

It should be noted that the well search results presented in Table 10 and Appendix C are not considered to be exhaustive of all groundwater wells within a one-mile radius of the site. It was reported by representatives of IGS and Iowa's Private Well Program that the requirement to register and/or permit wells in Iowa is relatively new. The databases will contain active public drinking water wells, industrial use wells, relatively new private wells, and wells that have associated water quality testing. However, it is assumed that older, private groundwater wells exist within the one-mile radius that are not identified in the well search.

6. CONCLUSIONS

6.1 RESULTS OF THE SITE SAMPLING VISIT

Sampling was conducted at the Flexsteel site on August 27, 2010 per the QAPP and site-specific SAP, with the exception of the deviations listed in Section 3.5. The data was collected to determine if contamination exists at the Flexsteel site.

Location 001 was the site of a former solvent disposal area. Subsurface soil samples were not collected, as underground utilities were suspected or encountered at 12 inches bgs during multiple test borings. However, no evidence of solvent impact was observed during the surface soil sampling, and the surface soil sample exhibited only trace detections of two VOCs . The surface soil COC concentrations are significantly below the Residential RSLs. As such, it is not anticipated that solvent impacts exist in subsurface soils at this Location 001.

None of the other COCs (RCRA metals) detected in any of the site soils individually or cumulatively exceeded 1×10^{-4} carcinogenic risk or a noncarcinogenic HQ of 1.0 when screened against Industrial or Residential RSLs.

Several RCRA metals were detected in the groundwater samples, with one or more exceeding its respective 1×10^{-4} carcinogenic screening level or noncarcinogenic HQ of 1.0. However, the groundwater samples were moderately turbid with silt. The increased turbidity is likely a significant cause of elevated metal detections in groundwater.

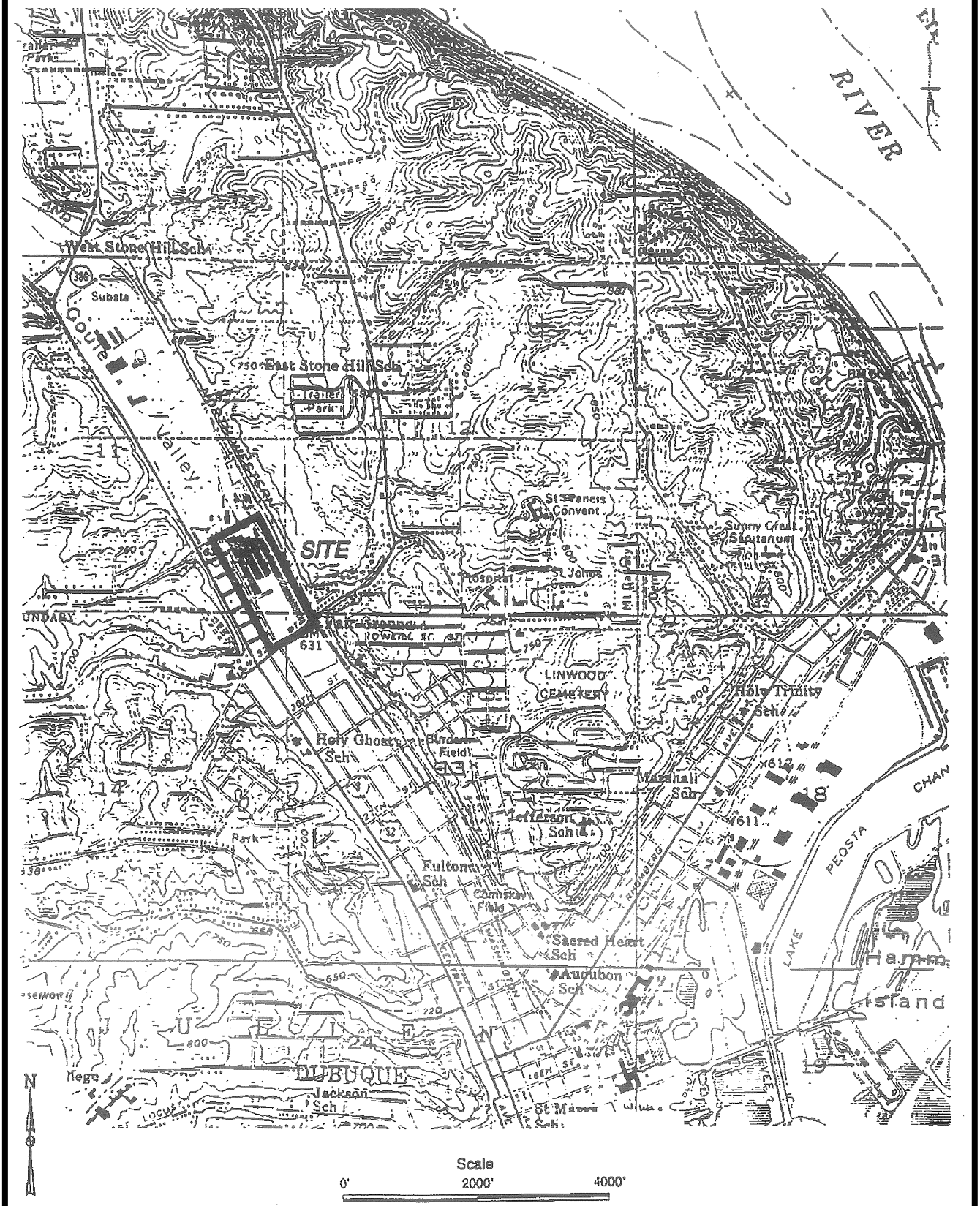
As discussed in Section 5.3.3, the IGS well search did not positively identify any drinking water wells within one mile downgradient of the site. One well of unknown use was identified approximately 0.9 miles downgradient of the site. In addition, the City of Dubuque's Municipal Well field (the potable water source for the city) is located approximately 1.5 miles downgradient. Several Superfund sites are/were located in the area. COCs (including RCRA metals) from at least one of these superfund sites (former Dubuque Municipal Landfill site) is thought to be potentially migrating into the Dubuque Municipal Well field. The City of Dubuque treats the groundwater extracted from the Municipal Well field prior to distribution.

APPENDIX A

MAPS

Map 1: General Area Map

Flexsteel Industries, Inc., Dubuque, Iowa

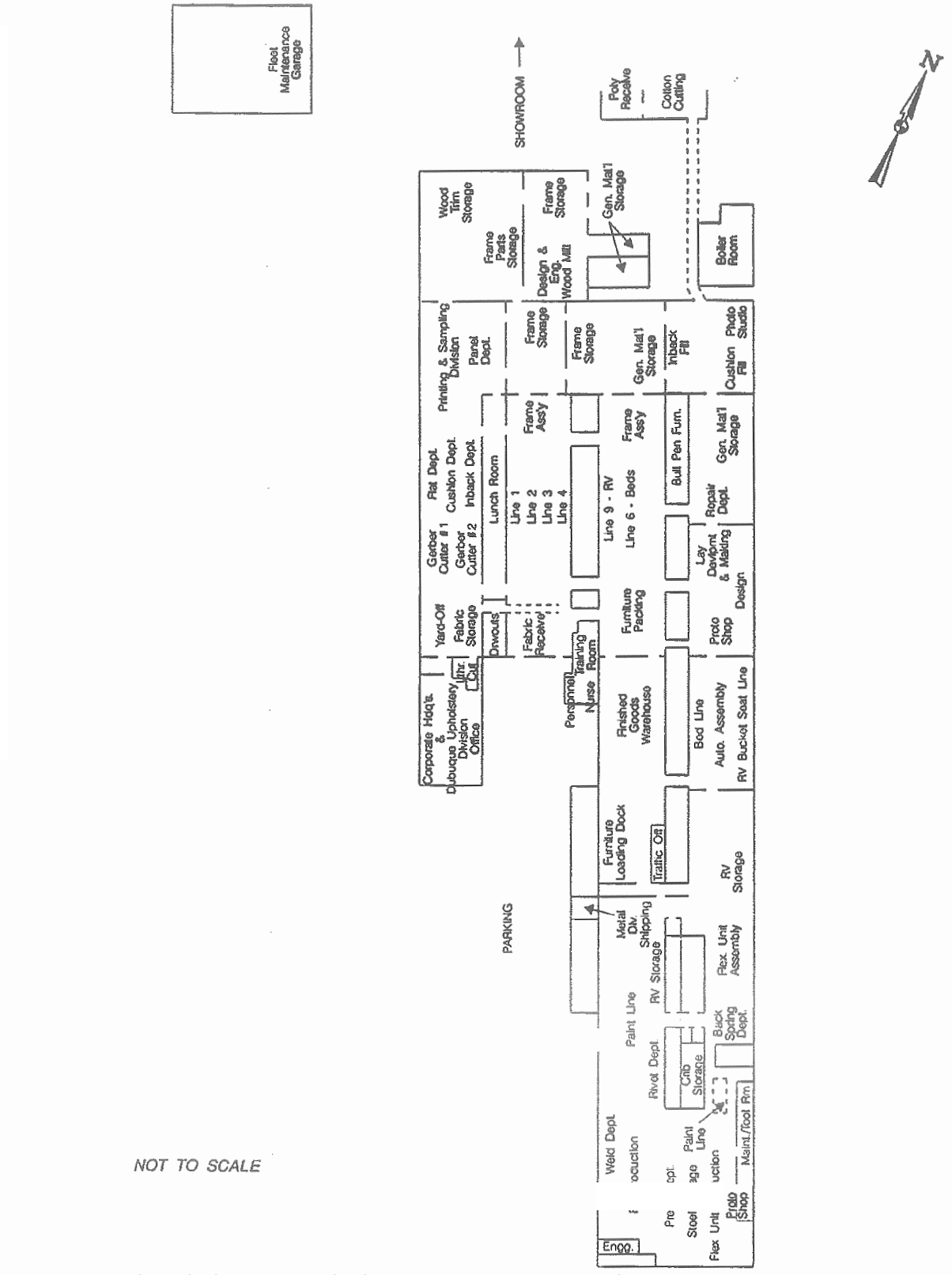


Base Map Source: Flexsteel Industries, Inc., Final Preliminary Assessment Report, December 11, 1993

Project No.: 7760-017	Flexsteel Industries, Inc. Dubuque, Iowa	Site Location Map	Figure 2-1
	rporation		11/91

Map 2: Site Map

Flexsteel Industries, Inc., Dubuque, Iowa

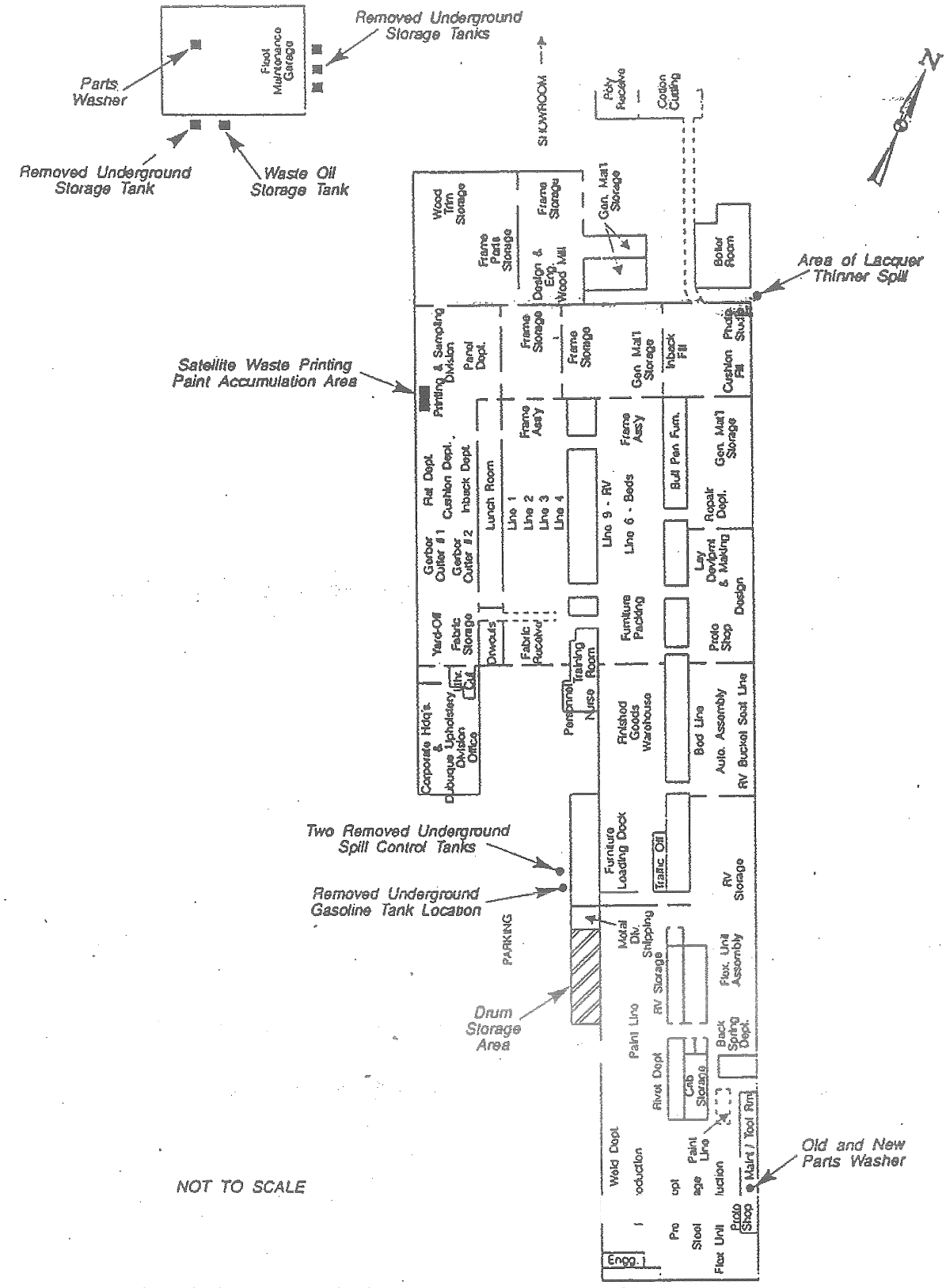


Base Map Source: Flexsteel Industries, Inc., Final Preliminary Assessment Report, December 11, 1993

Project No.: 7760-017	Flexsteel Industries, Inc. Dubuque, Iowa	Facility Map	12/91
	CDM FEDERAL PROGRAMS CORPORATION		

Map 3: 1991 PA SWMU and AOC Map

Flexsteel Industries, Inc., Dubuque, Iowa

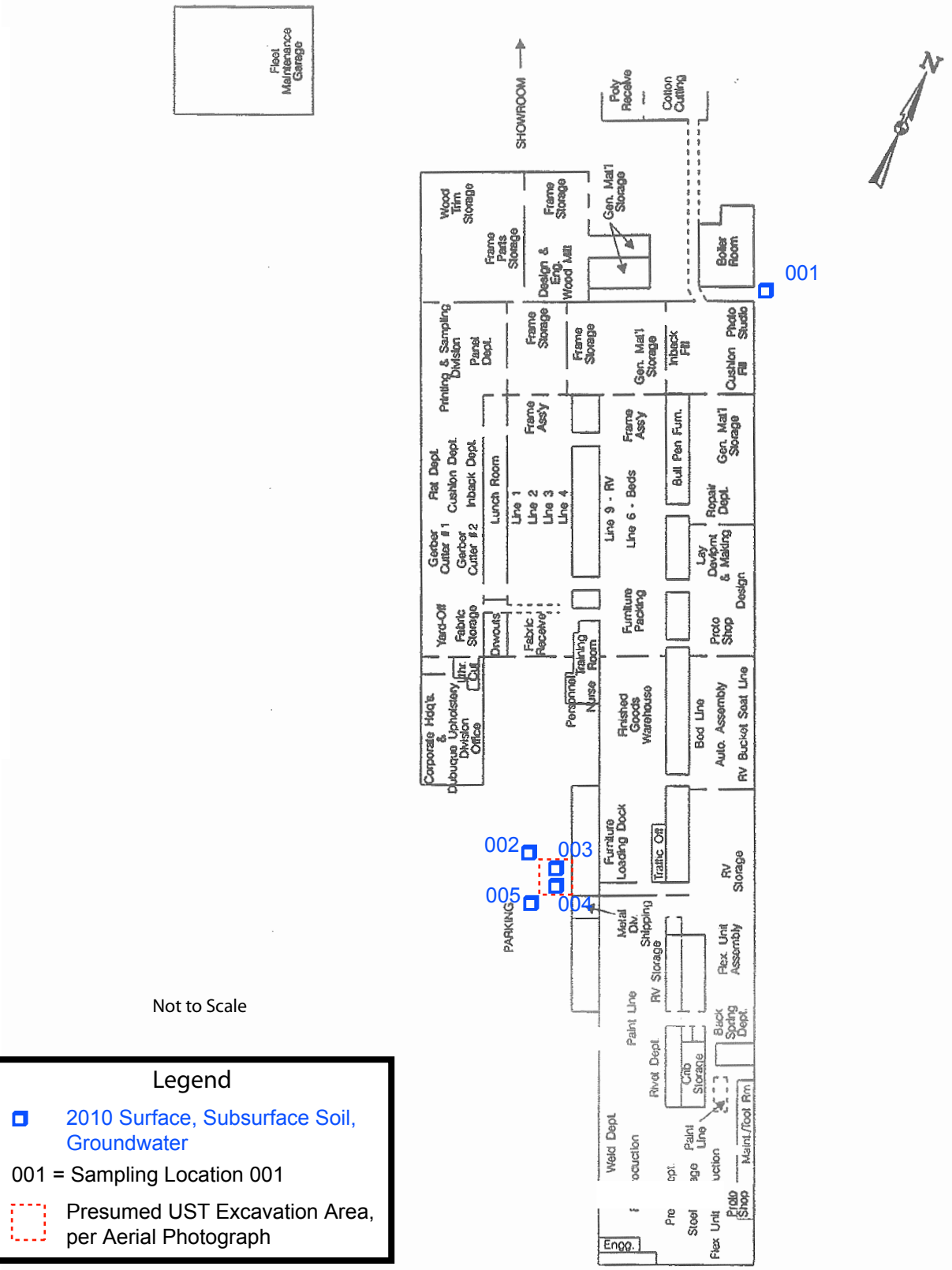


Base Map Source: Flexsteel Industries, Inc., Final Preliminary Assessment Report, December 11, 1993

Project No.: 7760-017	Flexsteel Industries, Inc. Dubuque, Iowa	SWMU and AOC Location Map	12/91
	CDM FEDERAL PROGRAMS CORPORATION		

Map 4: 2010 Sampling Locations Map

Flexsteel Industries, Inc., Dubuque, Iowa



Legend

- 2010 Surface, Subsurface Soil, Groundwater
- 001 = Sampling Location 001
- Presumed UST Excavation Area, per Aerial Photograph

Base Map Source: Flexsteel Industries, Inc., Final Preliminary Assessment Report, December 11, 1993

Project No.: 7760-017	Flexsteel Industries, Inc. Dubuque, Iowa CDM FEDERAL PROGRAMS CORPORATION	Facility Map	12/91

APPENDIX B

TELEPHONE CONVERSATION RECORD

Telephone Conversation Record - Flexsteel

Note: The Dubuque County Assessor's webpage (www.dubuquecounty.org/CountyAssessor/tabid/74/Default.aspx) shows that Flexsteel is still the owner of the site.

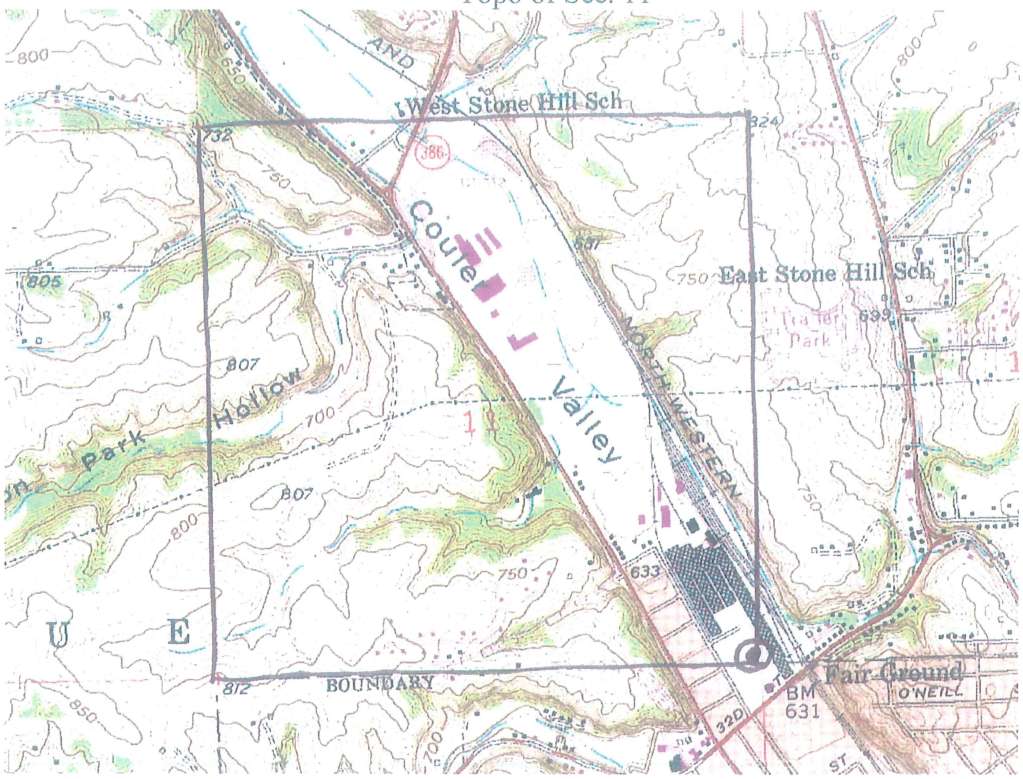
- Wednesday, July 28, 2010; 1503. Called Flexsteel contact (Mr. Steve Goffinet) at 563-585-8114 and left a message.
- Wednesday, July 28, 2010; 1533. Mr. Goffinet returned my call. I explained who I am and that I am an EPA contractor. I explained where the EPA wanted to sample and why, as well as the planned date of Friday, August 27, 2010. Mr. Goffinet understood the reasoning for the sampling, and stated that the planned date of August 27, 2010 is acceptable.

APPENDIX C

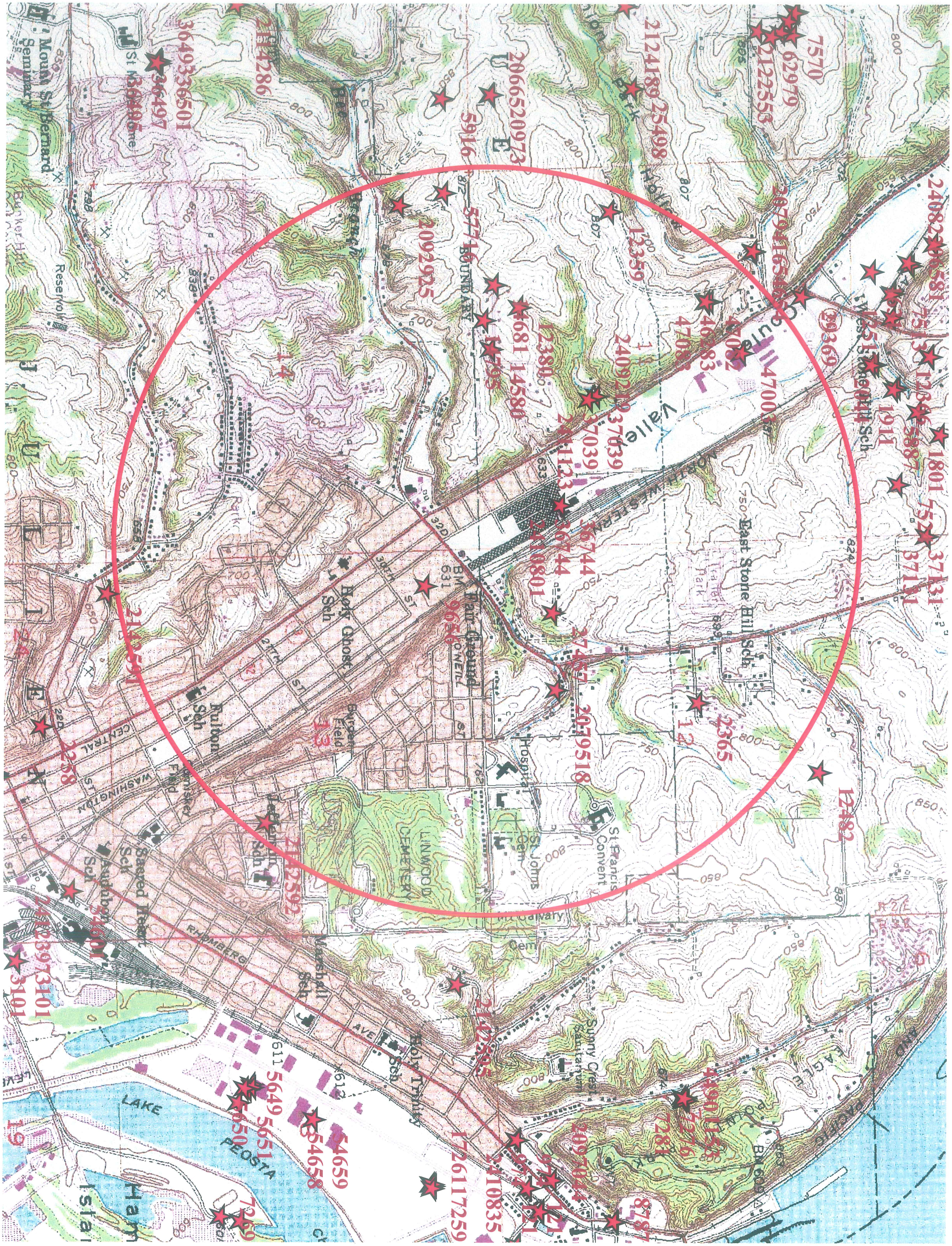
WELL SEARCH RESULTS, ONE-MILE RADIUS

Flexsteel, 3400 Jackson St., Dubuque, IA
Dubuque County. T89N, R02E, Sec 11, SE ¼ of SE ¼.

Topo of Sec. 11



Aerial of Sec. 11



Mount St. Bernard Seminary
Holy Ghost Sch
Fulton Sch
Linwood Cemetery
St. Johns Cem
Mt. Calvary Cem
St. Francis Convent
East Stone Hill Sch
Sunny Crest Sanitarium
Marshall Sch
Holy Trinity Sch
Lake Peosta
Central
Washington
Rhomberg Ave

APPENDIX D

GLOBAL POSITIONING SYSTEM DATA

Flexsteel

OBJECTID	MapID	WellID	ID_SRC_FLD	DATASRC	WELL_TYPE	LOCATION	COUNTY
205976	205976	12359	recordno	PVTP	Permitted private wells	T. 89 N., R. 2 E., Sec. 11, SW, NW	Dubuque
206028	206028	57716	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 14, NW, NW, NW	Dubuque
206089	206089	2092925	wellnmbr	PWTS	Private well tracking system	T. 89 N., R. 2E., Sec. 14, NW, NW, SE, SW, NW	Dubuque
206109	206109	47083	recordno	PLUG	Registered abandoned wells	T. 89 N., R. 2 E., Sec. 11, , , , NW, SE	Black Hawk
206110	206110	46283	recordno	PLUG	Registered abandoned wells	T. 89 N., R. 2 E., Sec. 11, , , , NW, SE	Howard
206118	206118	47082	recordno	PLUG	Registered abandoned wells	T. 89 N., R. 2 E., Sec. 11, , , , NW, SE	Dubuque
206140	206140	14681	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 11, SW, SE, SW	Dubuque
206151	206151	47003	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 11, NE, SW, NW, NW	Dubuque
206169	206169	12380	recordno	PVTP	Permitted private wells	T. 89 N., R. 2 E., Sec. 11, SW, SE	Dubuque
206205	206205	14795	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 11, SW, SE, SE, SW	Dubuque
206241	206241	14580	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 11, SW, SE, SE, SE, NE	Dubuque
206261	206261	2409219	tinwsf_is_number	SDWI	SDWIS well	T89N, R2E, Sec. 11, SE, NW, SW	Dubuque
206267	206267	37039	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 11, SE, NW, SE, SW, NW	Dubuque
206268	206268	2411123	tinwsf_is_number	SDWI	SDWIS well	T89N, R2E, Sec. 11, SE, NW, SE	Dubuque
206277	206277	37039	Wnumber	PUB	Public wells	T. 89N., R. 2E., Sec. 11, SE, NW, SE, SW, NW	Dubuque
206377	206377	36744	Wnumber	PUB	Public wells	T. 89N., R. 2E., Sec. 11, SE, SE, NE, NW	Dubuque
206378	206378	2410801	tinwsf_is_number	SDWI	SDWIS well	T89N, R2E, Sec. 11, SE, SE, NE	Dubuque
206381	206381	36744	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 11, SE, SE, NE, NW	Dubuque
206519	206519	27457	recordno	PLUG	Registered abandoned wells	T. 89 N., R. 2 E., Sec. 12, SW, SW, NE	Dickinson
206525	206525	9656	watersourceid	WTRU	Water Use Permit Wells	T89N, R2E, Sec. 13	Dubuque
206577	206577	2365	wnumber	GEOU	IGS well database	T. 89N., R. 2E., Sec. 12, NW, SE, SE	Dubuque
206593	206593	2079518	wellnmbr	PWTS	Private well tracking system	T. 89 N., R. 2E., Sec. 12, SE, SW, NE, SE, NW	Dubuque
206836	206836	2142592	wellnmbr	PWTS	Private well tracking system	T. 89 N., R. 2E., Sec. 13, NE, SE, SW, SW, NW	Dubuque

EST_LOC_AC	DEPTH	C_P_DATE	OWNER_NAME	OTHER_INFO
Calc. +/- 285m.	220	6/18/1992	Unkn	Primary use: Domestic/household
Calc. +/- 140 m.	450	07/22/2003	Ehrlich, Paul	Bedrock depth: 14; Well type: Private
nom. +/- 25m.	450	07/22/2003	Ehrlich, Paul	Status: Retired; Well use: Household
Calc. +/- 285m.	114	n.a.	Ia Dot, Parcel #26	Well plugged: 4/16/2001; Well type: < 18" dia.
Calc. +/- 285m.	120	n.a.	State Of Iowa	Well plugged: 6/22/2001; Well type: not reported
Calc. +/- 285m.	102	n.a.	Ia Dot, Parcel #27	Well plugged: 4/16/2001; Well type: < 18" dia.
Calc. +/- 140 m.	193	07/01/1962	Brandal, Jack	Bedrock depth: 15; Well type: Private
Calc. +/- 70 m.	830		Lime Rock Springs Co., Inc	Well type: Commercial
Calc. +/- 285m.	180	6/15/1989	Unkn	Primary use: Domestic/household
Calc. +/- 70 m.	180	08/01/1962	Baffelli, Tom	Bedrock depth: 15; Well type: Private
Calc. +/- 35 m.	164	06/01/1962	Nauman, Herman	Bedrock depth: 15; Well type: Private
+/- 20 m.	145		Dubuque Shooting Society	Plug # 1 ( ); PWSID: 3126882; Status: inactive
GPS	170	03/27/1992	Dubuque Shooting Society	Well type: Public access, Monitor
+/- 15 m.	165	12/01/1991	Dubuque Shooting Society	Well # 2 (1991); PWSID: 3126882; Status: active
GPS	170	03/27/1992	Dubuque Shooting Society	Local name: Dubuque Shooting Society #1; Status: Active
Meas. +/- 70 m.	667		Flexsteel Industries, Inc.	Local name: Flexsteel Industries, Inc. #1; Status: Inactive
+/- 140 m.	1200		Flexsteel Inc.	Well # 1 ( ); PWSID: 3126115; Status: inactive
Meas. +/- 70 m.	667		Flexsteel Industries, Inc.	Well type: Public access, Commercial
Calc. +/- 140m.	14	n.a.	Hoag, Maxine Estate, % Jean Mastin	Well plugged: nil; Well type: < 18" dia.
undeterermined	83		Dubuque Stamping & Mfg Inc	Water Use Permit #4885; Primary use: Industrial cooling
Calc. +/- 140 m.	65	11/29/1945	Peru Club	Bedrock depth: 15; Well type: Private
nom. +/- 25m.	98	01/01/1985	Christensen, Jim	Status: Plugged; Well use: Household
nom. +/- 25m.	0		Demaio, Nick	Status: Permitted; Well use: Heat pump

XCOORD	YCOORD
688995.75000000000	4711747.50000000000
688917.27000000000	4711036.63000000000
688971.25052700000	4710845.39602000000
689382.25000000000	4712160.50000000000
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689380.25000000000	4712162.50000000000
689310.39000000000	4711254.44000000000
689600.81000000000	4712316.10000000000
689406.75000000000	4711360.00000000000
689461.56000000000	4711210.29000000000
689585.84000000000	4711240.61000000000
689786.00000000000	4711690.00000000000
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690252.85000000000	4711541.12000000000
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690597.95000000000	4710962.69000000000
691093.95000000000	4712134.17000000000
691040.44871600000	4711524.23221000000
691609.12241600000	4710281.77560000000

HLINK	DISPERSE	BEST_REC
	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=57716	0	-1
http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2092925&reportName=WellPrintout	0	-1
	0	-1
	0	-1
	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=14681	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=47003	0	-1
	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=14795	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=14580	0	-1
https://facilityexplorer.iowadnr.gov/FacilityExplorer/SiteDetail.aspx?facID=310362506	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=37039	0	-1
https://facilityexplorer.iowadnr.gov/FacilityExplorer/SiteDetail.aspx?facID=310362506	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=37039	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=36744	0	-1
https://facilityexplorer.iowadnr.gov/FacilityExplorer/SiteDetail.aspx?facID=310356839	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=36744	0	-1
	0	-1
https://facilityexplorer.iowadnr.gov/FacilityExplorer/SiteDetail.aspx?facID=310428683	0	-1
http://www.igsb.uiowa.edu/webapps/geosam/Scripts/geocard.asp?wnumber=2365	0	-1
http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2079518&reportName=WellPrintout	0	-1
http://programs.iowadnr.gov/pwts/ViewReport.aspx?parameters=vchWellNmbr%5ct2142592&reportName=WellPrintout	0	-1

PUB_ACCESS	PRIV_ACCES
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
0	-1
0	-1
0	-1
0	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1
-1	-1

```
Export Version 4.20  4.20 Started.
Northing or Easting coordinate requested for a coordinate system that can't
calculate these values. Null values will be used.
Using Export Setup: Configurable ASCII
The following files in S:\GPS Pathfinder Data\john dixon - 150358 will be exported:
    08272010.cor
    08232010.cor
    08242010.cor
    08262010.cor

Reading file 08272010.cor
24 position(s) read.
A total of 6 feature(s) read or created.
  Of these, 1  feature(s) have no positions.
  6 point feature(s) read.
File 08272010.cor read successfully

Reading file 08232010.cor
163 position(s) read.
A total of 3 feature(s) read or created.
  3 point feature(s) read.
File 08232010.cor read successfully

Reading file 08242010.cor
50 position(s) read.
A total of 11 feature(s) read or created.
  Of these, 3  feature(s) have no positions.
  11 point feature(s) read.
File 08242010.cor read successfully

Reading file 08262010.cor
121 position(s) read.
A total of 10 feature(s) read or created.
  10 point feature(s) read.
File 08262010.cor read successfully

4 input file(s) read.
358 position(s) read.
A total of 30 feature(s) read or created.
  Of these, 4  feature(s) have no positions.
  30 point feature(s) read.
30 feature(s) exported.
4 output file(s) written to S:\GPS Pathfinder Data\john dixon - 150358\Export
    s:\gps pathfinder data\john dixon - 150358\export\08272010\point_generic.xls
    s:\gps pathfinder data\john dixon - 150358\export\08232010\point_generic.xls
    s:\gps pathfinder data\john dixon - 150358\export\08242010\point_generic.xls
    s:\gps pathfinder data\john dixon - 150358\export\08262010\point_generic.xls

The file S:\GPS Pathfinder Data\john dixon - 150358\Export\08272010.inf contains
information on the settings used.

The file C:\Documents and Settings\All Users\Application Data\Trimble\GPS Pathfinder
Office\Config\\expfiles.txt contains a list of the files created.
```

Setup Used:	Configurable ASCII
Export Format:	Configurable ASCII
Data Type:	Features
Feature Selection:	Export All Features
Not In Feature Positions:	Not Used
Export Notes:	No
Export Velocity Records:	No
Export Sensor Records:	No
File Option:	One File Set Per Feature
Templates:	Export1
File Structure:	DOS
Export Menu Attribute As:	Attribute Value
Generated Attributes:	Max PDOP
	Max HDOP
	Corr Type
	Rcvr Type
	GPS Date
	GPS Time
	Update Status
	GPS Height
	Vert Prec
	Horz Prec
	Std Dev
	Latitude
	Longitude
	Northing
	Easting
	Point_ID
	GPS Length
	GPS 3DLength
	Avg Vert Prec
	Avg Horz Prec
	Worst Vert Prec
	Worst Horz Prec
	Line_ID
	GPS Area
	GPS Perimeter
	GPS 3DPerimeter
	Avg Vert Prec
	Avg Horz Prec
	Worst Vert Prec
	Worst Horz Prec
	Area_ID

Position Filter Details:

Filter By:	GPS Criteria
Maximum PDOP:	Any
Maximum HDOP:	Any
Min Number Of SVs:	2D (3 or more SVs)
Uncorrected:	Yes
P(Y) Code:	Yes
Real-time SBAS:	Yes
Real-time Code:	Yes
Postprocessed Code:	Yes
Real-time Carrier Float:	Yes
Postprocessed Carrier Float:	Yes
RTK Fixed:	Yes
Postprocessed Carrier Fixed:	Yes
Non-GPS:	Yes
Coordinate System:	Lat/Long
Datum:	WGS 1984
Altitude Units:	Feet
Altitude Reference:	MSL
Geoid Model:	DMA 10x10 (Global)

```
Include Altitude:       No
Distance Units:         Feet
Area Units:             Square Feet
Velocity Units:         Miles Per Hour
Precision Units:        Feet
Lat/Long Format:        DD MM SS.sss
Quadrant:               +/-
Lat/Long DP:            9
Altitude DP:            3
Distance DP:            3
Area DP:                3

Data Dictionary
---------------
STREAM_FLAG - Point Feature
    Stream ID - String, Length = 16
    Flag # - Numeric, DP = 0, Min = 1, Max = 100, Default = 1
    Bank - Menu
        Left, CodeValue1 = , CodeValue2 =
        Right, CodeValue1 = , CodeValue2 =
    Flag Type - Menu
        CL X-ing, CodeValue1 = , CodeValue2 =
        AR X-ing, CodeValue1 = , CodeValue2 =
        End, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Stream Type - Menu
        Perennial, CodeValue1 = , CodeValue2 =
        Intermittent, CodeValue1 = , CodeValue2 =
        Ephemeral, CodeValue1 = , CodeValue2 =
        Per/Int, CodeValue1 = , CodeValue2 =
        Int/Eph, CodeValue1 = , CodeValue2 =
    Channel Width - Numeric, DP = 2, Min = 0.00, Max = 1000.00, Default = 0.00
    Units - Menu
        Feet, CodeValue1 = , CodeValue2 =
        Inches, CodeValue1 = , CodeValue2 =
    Culvert - Menu
        Inflow, CodeValue1 = , CodeValue2 =
        Edge of Road, CodeValue1 = , CodeValue2 =
        Outflow, CodeValue1 = , CodeValue2 =
    Culvert (inches) - Numeric, DP = 0, Min = 0, Max = 120, Default = 0
    Culvert Material - Menu
        Metal, CodeValue1 = , CodeValue2 =
        Concrete, CodeValue1 = , CodeValue2 =
        Plastic, CodeValue1 = , CodeValue2 =
    Stream Name (Common) - String, Length = 30
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
WETLAND_FLAG - Point Feature
    Wetland ID - String, Length = 16
    Flag # - Numeric, DP = 0, Min = 1, Max = 100, Default = 1
    Flag Type - Menu
```

```
        CL X-ing, CodeValue1 = , CodeValue2 =
        AR X-ing, CodeValue1 = , CodeValue2 =
        End, CodeValue1 = , CodeValue2 =
        Open End, CodeValue1 = , CodeValue2 =
        End/Open End, CodeValue1 = , CodeValue2 =
        Upland, CodeValue1 = , CodeValue2 =
    Type 1 - Menu
        PEM, CodeValue1 = , CodeValue2 =
        PSS, CodeValue1 = , CodeValue2 =
        PFO, CodeValue1 = , CodeValue2 =
        POW, CodeValue1 = , CodeValue2 =
        PUB, CodeValue1 = , CodeValue2 =
    Type 2 - Menu
        PEM, CodeValue1 = , CodeValue2 =
        PSS, CodeValue1 = , CodeValue2 =
        PFO, CodeValue1 = , CodeValue2 =
        POW, CodeValue1 = , CodeValue2 =
        PUB, CodeValue1 = , CodeValue2 =
    Jurisdiction - Menu
        Abutting, CodeValue1 = , CodeValue2 =
        Adjacent, CodeValue1 = , CodeValue2 =
        Isolated, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
POND_FLAG - Point Feature
    Pond ID - String, Length = 16
    Flag # - Numeric, DP = 0, Min = 1, Max = 100, Default = 1
    Flag Type - Menu
        CL X-ing, CodeValue1 = , CodeValue2 =
        AR X-ing, CodeValue1 = , CodeValue2 =
        End, CodeValue1 = , CodeValue2 =
        Open End, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
GROUNDWATER - Point Feature
    Groundwater ID - String, Length = 16
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
```

```
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
CENTERLINE - Point Feature
    Line ID - String, Length = 16
    Type - Menu
        Gas, CodeValue1 = , CodeValue2 =
        Electric, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Station # - String, Length = 10
    Proposed Attribute - Menu
        Start, CodeValue1 = , CodeValue2 =
        End, CodeValue1 = , CodeValue2 =
        p.i., CodeValue1 = , CodeValue2 =
    Existing Attribute - Menu
        Gas Marker, CodeValue1 = , CodeValue2 =
        Test Stand, CodeValue1 = , CodeValue2 =
        Exposed Pipe, CodeValue1 = , CodeValue2 =
        Tie-In, CodeValue1 = , CodeValue2 =
        Overhead Line, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
ACCESS_ROAD - Point Feature
    Access Road ID - String, Length = 16
    Type - Menu
        Existing, CodeValue1 = , CodeValue2 =
        New, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Condition - Menu
        Paved, CodeValue1 = , CodeValue2 =
        Gravel, CodeValue1 = , CodeValue2 =
        Dirt, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Culvert - Menu
        Inflow, CodeValue1 = , CodeValue2 =
        Edge of Road, CodeValue1 = , CodeValue2 =
        Outflow, CodeValue1 = , CodeValue2 =
    Culvert (inches) - Numeric, DP = 0, Min = 0, Max = 120, Default = 0
    Culvert Material - Menu
        Metal, CodeValue1 = , CodeValue2 =
        Concrete, CodeValue1 = , CodeValue2 =
        Plastic, CodeValue1 = , CodeValue2 =
```

```
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
WELL - Point Feature
    Well ID - String, Length = 16
    Type - Menu
        Existing, CodeValue1 = , CodeValue2 =
        New, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
STRUCTURE - Point Feature
    Structure ID - String, Length = 16
    Type - Menu
        Residence, CodeValue1 = , CodeValue2 =
        Garage, CodeValue1 = , CodeValue2 =
        Barn, CodeValue1 = , CodeValue2 =
        Water Well, CodeValue1 = , CodeValue2 =
        Springhouse, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
WORK_SPACE - Point Feature
    Work Space ID - String, Length = 16
    Type - Menu
        Extra Work Space, CodeValue1 = , CodeValue2 =
        Wellpad, CodeValue1 = , CodeValue2 =
        Storage Yard, CodeValue1 = , CodeValue2 =
```

```
        Other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
CULTURAL_RESOURCE - Point Feature
    Resource ID - String, Length = 16
    Type - Menu
        Cemetery, CodeValue1 = , CodeValue2 =
        Rock Shelter, CodeValue1 = , CodeValue2 =
        Structure, CodeValue1 = , CodeValue2 =
        Other, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
PHOTO_LOCATION - Point Feature
    Photo ID - String, Length = 16
    Direction 1 - Menu
        N, CodeValue1 = , CodeValue2 =
        S, CodeValue1 = , CodeValue2 =
        E, CodeValue1 = , CodeValue2 =
        W, CodeValue1 = , CodeValue2 =
        NE, CodeValue1 = , CodeValue2 =
        SE, CodeValue1 = , CodeValue2 =
        NW, CodeValue1 = , CodeValue2 =
        SW, CodeValue1 = , CodeValue2 =
    Direction 2 - Menu
        N, CodeValue1 = , CodeValue2 =
        S, CodeValue1 = , CodeValue2 =
        E, CodeValue1 = , CodeValue2 =
        W, CodeValue1 = , CodeValue2 =
        NE, CodeValue1 = , CodeValue2 =
        SE, CodeValue1 = , CodeValue2 =
        NW, CodeValue1 = , CodeValue2 =
        SW, CodeValue1 = , CodeValue2 =
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
```

```
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Point_generic - Point Feature
    Comment - String, Length = 32
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Height - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Std Dev - Numeric, DP = 6, Min = 0.000000, Max = 0.000000, Default = 0.000000
    Latitude - String, Length = 36
    Longitude - String, Length = 36
    Point_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Line_generic - Line Feature
    Comment - String, Length = 32
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Length - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    GPS 3DLength - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Avg Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Avg Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Line_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
Area_generic - Area Feature
    Comment - String, Length = 32
    Max PDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Max HDOP - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Corr Type - String, Length = 36
    Rcvr Type - String, Length = 36
    GPS Date - Date
    GPS Time - Time
    Update Status - String, Length = 36
    GPS Area - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    GPS Perimeter - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    GPS 3DPerimeter - Numeric, DP = 3, Min = 0.000, Max = 0.000, Default = 0.000
    Avg Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Avg Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Vert Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Worst Horz Prec - Numeric, DP = 1, Min = 0.0, Max = 0.0, Default = 0.0
    Area_ID - Numeric, DP = 0, Min = 0, Max = 0, Default = 0
```

Latitude	Longitude	ID	FeatureName	HAE	MSL	Comment	Max PDOP	Max HDOP	Corr Type	Rcvr Type
42 31 48.831210827 +	90 40 55.780237061 -	1	Point_generic	520.03	630.335	location 2	3	1.9	Postprocessed C	GeoXT 2005
42 31 48.787141049 +	90 40 55.229084550 -	2	Point_generic	522.496	632.802	location 3	3.9	2.1	Postprocessed C	GeoXT 2005
42 31 48.565536187 +	90 40 55.189650869 -	3	Point_generic	523.609	633.915	location 4	4.7	3.2	Postprocessed C	GeoXT 2005
42 31 48.297004200 +	90 40 55.404403264 -	4	Point_generic	529.947	640.252	location 5	3.9	2.1	Postprocessed C	GeoXT 2005
		5	Point_generic			junk	3.9	2.1	Unknown Correct	GeoXT 2005
42 31 57.985933125 +	90 40 57.236536871 -	6	Point_generic	538.142	648.446	location 1	5.6	2.4	Postprocessed C	GeoXT 2005

GPS Date	GPS Time	Update	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude	Point_ID	GPSTime
8/27/2010	09:54:30am	New	630.335	2.6	2.9		42 31 48.831210827 +	90 40 55.780237061 -	1	08/27/10 02:54:45pm
8/27/2010	09:55:15am	New	632.802	3.4	2.8	1.78797	42 31 48.787141049 +	90 40 55.229084550 -	2	08/27/10 02:55:35pm
8/27/2010	09:56:00am	New	633.915	3.3	3.1	5.135663	42 31 48.565536187 +	90 40 55.189650869 -	3	08/27/10 02:56:22pm
8/27/2010	09:56:35am	New	640.252	3.3	2.7		42 31 48.297004200 +	90 40 55.404403264 -	4	08/27/10 02:56:50pm
8/27/2010	03:15:12pm	New				0			5	
8/27/2010	03:18:00pm	New	648.446	4.7	2.2	0.077144	42 31 57.985933125 +	90 40 57.236536871 -	6	08/27/10 08:18:20pm

APPENDIX E

FIELD DOCUMENTATION

APPENDIX F

PHOTOGRAPHIC LOG

Photo 1; August 27, 2010, 0758; Photographer: Meredith Watson; Facing SSE.
View of the concrete pad west of the loading dock (Locations #2, 3, 4, and 5).

Photo 2; August 27, 2010, 0800; Photographer: Meredith Watson; Facing N.
View of the concrete pad west of the loading dock (Locations #2, 3, 4, and 5).

Photo 3; August 27, 2010, 0800; Photographer: Meredith Watson; Facing W.
View of the concrete pad west of the loading dock (Locations #2, 3, 4, and 5).

Photo 4; August 27, 2010, 0818; Photographer: John Dixon; Facing E.
Geoprobe crew cutting through concrete at Location #4.

Photo 5; August 27, 2010, 0818; Photographer: John Dixon; Facing W. Another view of Geoprobe crew cutting through concrete at Location #4, from southeast corner of the concrete pad.

Photo 6; August 27, 2010, 1253; Photographer: Meredith Watson; Facing SW. Approximate location of historical solvent disposal (Location #1), left of the stairs.

Photo 7; August 27, 2010, 1301; Photographer: Meredith Watson; Facing S
View of stormwater piping from building platforms and roofs running into ground near Location #1.

Photo 8; August 27, 2010, 1324; Photographer: Meredith Watson; Facing NW.
View of stormwater piping from roofs running into ground.

Photo 9; August 27, 2010, 1307; Photographer: Meredith Watson; Facing SE. View of stormwater culvert, which runs parallel to building (across area of Location #1) and discharges north of the facility.

Photo 10; August 27, 2010, 1324; Photographer: Meredith Watson; Facing down. First attempt with hand auger – blue plastic piping encountered at one foot bgs.

Photo 11; August 27, 2010, 1347; Photographer: John Dixon; Facing NW. First attempt and two additional exploratory holes augered near Location #1 all met plastic piping or utility-grade fill material.

Photo 12; August 27, 2010, 1620; Photographer: Meredith Watson; Facing N. View of concrete pad (Locations #2, 3, 4, and 5) after sample collection, plugging with bentonite chips, and surface completion with concrete patching.

APPENDIX G

ANALYTICAL SERVICE REQUEST FORMS

US EPA Region 7 Analytical Services Request (ASR)

08/03/2010 12:13

Project ID: CHFIRCRA ASR Number: 5006 Projected Delivery Date: 08/30/2010

Project Desc: Flexsteel Industries - RCRA site sampling

City: Cedar Rapids State: Iowa Program: RCRA Corrective Action

GPRA PRC: 302D99C

Project Manager: Cynthia Hutchison

Organization: AWMD/RCAP Phone Number: 913-551-7478

Contact: John Dixon

Organization: Booz-Allen and Hamilton, Inc. Contact Phone: 816-448-3253

ASR Purpose: Site Characterization

Comments: RCRA Site ID: IAD005146048.

Is this activity currently or potentially a criminal investigation? No

Has a QAPP for the requested services been approved? Yes

QAPP Log Number and/or QA Document Number:

For health, safety and environmental compliance are any samples expected to contain:

Dioxin > 1ppb: Unlikely

RCRA Listed Wastes: Unlikely

Toxic/Hazardous Chemicals >1000ppm: Unlikely

No. of Samples	Req No	Analysis Name	CNS List	Conc of Interest	Expected Conc	Lab
14	1	Percent Solid			Low	EPA
14	1	Total Metals Analysis of TCLP Metals in Soil by ICP-AES		3122.3C	Low	EPA
14	1	VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap		3230.16D	Low	ESAT
9	1	Metals in Water by ICP/MS		3123.1C	Low	EPA
9	1	VOCs in Water by GC/MS		3230.1F	Low	EPA

Special Analytical Requirements or Comments:

30-Day TAT from the receipt of the last sample. Sampling will delivered in 1 batch on Monday (8/30) via overnight priority delivery and/or hand-delivery. No weekend deliveries. Field sampler must ensure that samples arrive on or before the 3rd day of sample collection, that any or all samples delivered on any Friday arrive before noon and that if any samples are delivered on Monday (8/30) that they arrive with plenty of holding time to analyze accordingly. Field sampler must provide extra (triple) volume as required on the water and soil LDL VOA samples for CARB QC (MS/MSD) purposes. CARB will provide extra containers/labels for this purpose. No extra volume for QC (MS/MSD) is needed/required if remaining containers are completely full and must be shipped/delivered properly to avoid any and/or all breakage.

Date Submitted: 07/23/2010 By: Nicole Roblez ASR Status: Accepted

Date Accepted: 08/03/2010 By: Nicole Roblez RLAB Turn Around Time: 30 Days

Project Desc: Flexsteel Industries - RCRA site sampling

Date Transmitted: By: ANOP Turn Around Time: 23 Days

Sampling Supplies and QC/PE Samples

08/03/2010 12:13

ASR Number: 5006 Project ID: CHFIRCRA

Project Desc: Flexsteel Industries - RCRA site sampling

Project Manager: Cynthia Hutchison
Organization: AWMD/RCAP Phone Number: 913-551-7478

Contact: John Dixon
Organization: Booz-Allen and Hamilton, Inc. Contact Phone: 816-448-3253

Supply Pickup Date: 08/19/2010

Supply Comments:
Fieldsheets and tags will be ready in the back dock refrig. at the STC for a pickup on or before Thursday (8/19)am. Field sampler will need to contact Joe Ricard (3-Days prior to gear pickup date) at Cell #913-339-8104 or 816-268-0225 to coordinate the remaining sampling supplies pickup at 8600 NE Underground Dr., Pillar 253, K.C., MO. 64161.

Field sampler will need to provide their own sodium bisulfate preserved, tared and pre-weighed vials (enough for 2 per location with 1 receiving triple amount for QC=MS/MSD purposes) and they must also provide the sample collection equipment (i.e. encore or syringe collection method). KCMO will still provide the remaining empty vials (2 per location w/1 receiving triple amount for QC=MS/MSD purposes), charcoal thimbles, cubis. & lids.

Qty	Sample Containers
10	1-Liter Cubitainer w/lid
15	8-oz. Wide Mouth Glass Jar (250 mL)
28	40-mL VOA Vial (Routine 2 in cubi)

Qty	Equipment
1	Ice Chest (w/ plastic bag)

Qty	Preservatives
1	HCl (1:1) Dropper Bottle
1	HNO3 (1:1) 5mL Squeeze Bottle

Qty	Misc. Supplies
2	Chain-of-Custody Forms (each)
1	Custody-Seal Tape (by piece)
1	Fiber Tape (by roll)
1	Clear Wide Tape (by roll)
28	Charcoal Thimbles

Qty	QC Samples
1	Water Trip Blank, Routine VOA (2 vials)
1	DI Water, 1-Gallon Cubi

Performance Evaluation Samples

ASR Number: 5006 Project ID: CHFIRCRA

Project Desc: Flexsteel Industries - RCRA site sampling

Project Manager: Cynthia Hutchison
Organization: AWMD/RCAP Phone Number: 913-551-7478

Contact: John Dixon
Organization: Booz-Allen and Hamilton, Inc. Contact Phone: 816-448-3253

Supply Pickup Date: 08/19/2010

Supply Comments:

Qty	Matrix	Analytes	Concentration Range
(None)			

APPENDIX H

ANALYTICAL DATA

United States Environmental Protection Agency
Region 7
901 N. 5th Street
Kansas City, KS 66101

Date: 10/06/2010

Subject: Transmittal of Sample Analysis Results for ASR #: 5006

Project ID: CHFIRCRA

Project Description: Flexsteel Industries - RCRA site sampling

From: Michael F. Davis, Chief
Chemical Analysis and Response Branch, Environmental Services Division

To: Cynthia Hutchison
AWMD/RCAP

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

Project Manager: Cynthia Hutchison Org: AWMD/RCAP Phone: 913-551-7478

Project ID: CHFIRCRA

Project Desc: Flexsteel Industries - RCRA site sampling

Location: Cedar Rapids State: Iowa Program: RCRA Corrective Action

Purpose: Site Characterization GPRA PRC: 302D99C

RCRA Site ID: IAD005146048.

Explanation of Codes, Units and Qualifiers used on this report

Sample QC Codes: QC Codes identify the type of sample for quality control purpose.

__ = Field Sample
FB = Field Blank
FD = Field Duplicate

Units: Specific units in which results are reported.

% = Percent
Deg C = Degrees Celsius
NTU = Nephelometric Turbidity Units
SU = Standard Units (pH)
mg/L = Milligrams per Liter
mg/kg = Milligrams per Kilogram
ug/L = Micrograms per Liter
ug/kg = Micrograms per Kilogram
umhos/cm = Micromhos per Centimeter

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank) = Values have been reviewed and found acceptable for use.
J = The identification of the analyte is acceptable; the reported value is an estimate.
U = The analyte was not detected at or above the reporting limit.
UJ = The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.

Project ID: CHFIRCRA Project Desc: Flexsteel Industries - RCRA site sampling

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1	__	Solid	FI-01-SL-001 (Location #1, 0-1' bgs)		08/27/2010	13:28	08/27/2010	13:32	08/30/2010
1	FD	Solid	Field Duplicate of sample 1		08/27/2010	13:34	08/27/2010	13:39	08/30/2010
6	__	Solid	FI-01-SL-002 (Location #2, 5-6.5' bgs)		08/27/2010	11:14	08/27/2010	11:20	08/30/2010
7	__	Solid	FI-02-SL-002 (Location #2, 12.5-14' bgs)		08/27/2010	11:23	08/27/2010	11:28	08/30/2010
8	__	Solid	FI-01-SL-003 (Location #3, 5-6.5' bgs)		08/27/2010	10:05	08/27/2010	10:11	08/30/2010
9	__	Solid	FI-02-SL-003 (Location #3, 12.5-14' bgs)		08/27/2010	10:16	08/27/2010	10:22	08/30/2010
10	__	Solid	FI-02-SL-004 (Location #4, 5-6.5' bgs)		08/27/2010	08:21	08/27/2010	08:26	08/30/2010
10	FD	Solid	Field Duplicate of sample 10		08/27/2010	09:47	08/27/2010	09:53	08/30/2010
12	__	Solid	FI-03-SL-004 (Location #4, 13.5-15' bgs)		08/27/2010	08:30	08/27/2010	08:35	08/30/2010
13	__	Solid	FI-01-SL-005 (Location #5, 5-6' bgs)		08/27/2010	13:57	08/27/2010	14:11	08/30/2010
14	__	Solid	FI-02-SL-005 (Location #5, 12.5-14' bgs)		08/27/2010	14:13	08/27/2010	14:19	08/30/2010
104	__	Water	FI-01-GW-003 (Location #3, groundwater)		08/27/2010	11:29	08/27/2010	11:38	08/30/2010
105	__	Water	FI-01-GW-004 (Location #4, groundwater)		08/27/2010	09:23	08/27/2010	09:31	08/30/2010
106	__	Water	FI-01-GW-005 (Location #5, Groundwater)		08/27/2010	15:29	08/27/2010	15:58	08/30/2010
106	FD	Water	Field Duplicate of sample 106		08/27/2010	15:29	08/27/2010	15:58	08/30/2010
107	__	Water	FI-01-EB-001 (Soil Equipment EB #1)		08/27/2010	10:39	08/27/2010	10:43	08/30/2010
108	__	Water	FI-02-EB-001 (Soil Equipment EB #2 - Auger)		08/27/2010	14:20	08/27/2010	14:24	08/30/2010
109	__	Water	FI-03-EB-001 (GW Equipment EB)		08/27/2010	08:31	08/27/2010	08:35	08/30/2010
110	FB	Water	Routine water VOA Trip Blank sample	FI-01-TB-001	08/27/2010	08:12	08/27/2010	08:13	08/30/2010

Analysis	Comments About Results For This Analysis

1 Percent Solid

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3142.9F

Basis: N/A

Samples: 1-__ 1-FD 6-__ 7-__ 8-__ 9-__ 10-__
10-FD 12-__ 13-__ 14-__

Comments:
(N/A)

1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3122.3D

Basis: Dry

Samples: 1-__ 1-FD 6-__ 7-__ 8-__ 9-__ 10-__
10-FD 12-__ 13-__ 14-__

Comments:
Cadmium, Chromium and Lead were J-coded in sample 1. Although the analytes in question have been positively identified in the sample, the quantitation is an estimate (J-coded) due to low recovery of these analytes in the laboratory matrix spike. The actual concentration for these analytes may be higher than the reported value.

Selenium was UJ-coded in sample 1. This analyte was not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recovery of this analyte in the laboratory matrix spike. The actual reporting limit for this analyte may be higher than the reported value.

Selenium was UJ-coded in sample 1. This analyte was not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to poor precision obtained for this analyte in the laboratory matrix spike and matrix spike duplicate. The actual reporting limit for this analyte may be higher than the reported value.

1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap

Lab: Region 7 ESAT Contract Lab (In-House)

Method: EPA Region 7 RLAB Method 3230.16D

Basis: Dry

Samples: 1-__ 1-FD 6-__ 7-__ 8-__ 9-__ 10-__
10-FD 12-__ 13-__ 14-__

Comments:
Reporting Limits: The reporting limits were raised for all samples due to the weight and percent solids.

Analysis	Comments About Results For This Analysis

Dichlorodifluoromethane (25.03%RSD) was UJ-coded in samples 1, 1-FD, 6, 7, 8, 9, 10, 10-FD, 12, 13, and 14. This analyte was not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to the initial instrument calibration curve not meeting linearity specifications. The actual reporting limit may be higher than the reported value.

1 Conductivity by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 106-__ 106-FD

Comments:
(N/A)

1 Metals in Water by ICP/MS

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3123.1C

Samples: 104-__ 105-__ 106-__ 106-FD 107-__ 108-__ 109-__

Comments:

1 pH of Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 106-__ 106-FD

Comments:
(N/A)

1 Temperature of Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 106-__ 106-FD

Comments:
(N/A)

1 Total Dissolved Oxygen in Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 106-__ 106-FD

Analysis	Comments About Results For This Analysis

Comments:
(N/A)

1 Turbidity of Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 106-__ 106-FD

Comments:
(N/A)

1 VOCs in Water by GC/MS

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.1F

Samples: 104-__ 105-__ 106-__ 106-FD 107-__ 108-__ 109-__ 110-FB

Comments:

Range: The lowest Cal standard was not used for Acetone. As the low standard used for this compound is 10ug/L, the reporting limit has been raised to this level.

Acetone, 2-Butanone and 2-Hexanone were UJ-coded in samples 104-106, 106FD, 107-109 and 110FB. These analytes were not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to the continuing calibration check not meeting accuracy specifications. The actual reporting limit for these analytes may be higher than the reported value.

Bromform, Dibromochloromethane, 1,2-Dibromoethane, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, trans-1,3-Dichloropropene, 4-Methyl-2-Pentanone, 1,1,2,2-Tetrachloroethane and 1,1,2-Trichloroethane were UJ-coded in sample 106. These analytes were not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recovery of these analytes in the laboratory matrix spike. The actual reporting limit for these analytes may be higher than the reported value.

Analysis/ Analyte	Units	1-__	1-FD	6-__	7-__
1 Percent Solid					
Solids, percent	%	93.0	88.5	80.9	77.2
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	5.4 U	5.5 U	6.0 U	6.2 U
Barium	mg/kg	10.7	15.3	136	105
Cadmium	mg/kg	1.3 J	1.5	3.6	4.0
Chromium	mg/kg	3.3 J	4.1	19.0	20.1
Lead	mg/kg	35.8 J	11.0	6.0 U	6.2 U
Selenium	mg/kg	10.7 UJ	11.0 U	12.1 U	12.4 U
Silver	mg/kg	2.1 U	2.2 U	2.4 U	2.5 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	12 U	14 U	26	26
Benzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Bromodichloromethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Bromoform	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Bromomethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
2-Butanone	ug/kg	12 U	14 U	12 U	12 U
Carbon Disulfide	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Carbon Tetrachloride	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Chlorobenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Chloroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Chloroform	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Chloromethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Cyclohexane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Dibromochloromethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,2-Dibromoethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,2-Dichlorobenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,3-Dichlorobenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,4-Dichlorobenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Dichlorodifluoromethane	ug/kg	5.8 UJ	7.0 UJ	5.9 UJ	6.2 UJ
1,1-Dichloroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,2-Dichloroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,1-Dichloroethene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
cis-1,2-Dichloroethene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
trans-1,2-Dichloroethene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,2-Dichloropropane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
cis-1,3-Dichloropropene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
trans-1,3-Dichloropropene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Ethyl Benzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
2-Hexanone	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Isopropylbenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Methyl Acetate	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Methyl tert-butyl ether	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Methylcyclohexane	ug/kg	7.6	7.1	5.9 U	6.2 U
Methylene Chloride	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U

Analysis/ Analyte	Units	1-__	1-FD	6-__	7-__
4-Methyl-2-Pentanone	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Naphthalene	ug/kg	12 U	14 U	12 U	12 U
Styrene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,1,2,2-Tetrachloroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Tetrachloroethene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Toluene	ug/kg	8.5	9.1	5.9 U	6.2 U
1,2,3-Trichlorobenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,2,4-Trichlorobenzene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,1,1-Trichloroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,1,2-Trichloroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Trichloroethene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Trichlorofluoromethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
Vinyl Chloride	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U
m and/or p-Xylene	ug/kg	12 U	14 U	12 U	12 U
o-Xylene	ug/kg	5.8 U	7.0 U	5.9 U	6.2 U

Analysis/ Analyte	Units	8-__	9-__	10-__	10-FD
1 Percent Solid					
Solids, percent	%	80.2	77.8	76.3	80.6
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	6.1 U	6.3 U	6.5 U	6.0 U
Barium	mg/kg	123	121	154	128
Cadmium	mg/kg	3.2	4.6	3.6	3.3
Chromium	mg/kg	17.6	21.1	19.0	18.2
Lead	mg/kg	6.1 U	6.3 U	6.5 U	6.0 U
Selenium	mg/kg	12.2 U	12.5 U	13.1 U	12.0 U
Silver	mg/kg	2.4 U	2.5 U	2.6 U	2.4 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	36	41	40	27
Benzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Bromodichloromethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Bromoform	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Bromomethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
2-Butanone	ug/kg	11 U	12 U	13 U	10 U
Carbon Disulfide	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Carbon Tetrachloride	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Chlorobenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Chloroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Chloroform	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Chloromethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Cyclohexane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Dibromochloromethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2-Dibromoethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2-Dichlorobenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,3-Dichlorobenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,4-Dichlorobenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Dichlorodifluoromethane	ug/kg	5.7 UJ	6.0 UJ	6.3 UJ	5.2 UJ
1,1-Dichloroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2-Dichloroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,1-Dichloroethene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
cis-1,2-Dichloroethene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
trans-1,2-Dichloroethene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2-Dichloropropane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
cis-1,3-Dichloropropene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
trans-1,3-Dichloropropene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Ethyl Benzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
2-Hexanone	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Isopropylbenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Methyl Acetate	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Methyl tert-butyl ether	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Methylcyclohexane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Methylene Chloride	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U

Analysis/ Analyte	Units	8-__	9-__	10-__	10-FD
4-Methyl-2-Pentanone	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Naphthalene	ug/kg	11 U	12 U	13 U	10 U
Styrene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,1,2,2-Tetrachloroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Tetrachloroethene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Toluene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2,3-Trichlorobenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,2,4-Trichlorobenzene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,1,1-Trichloroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,1,2-Trichloroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Trichloroethene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Trichlorofluoromethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
Vinyl Chloride	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U
m and/or p-Xylene	ug/kg	11 U	12 U	13 U	10 U
o-Xylene	ug/kg	5.7 U	6.0 U	6.3 U	5.2 U

Analysis/ Analyte	Units	12-__	13-__	14-__	104-__
1 Percent Solid					
Solids, percent	%	79.8	80.7	77.5	
1 Total Metals Analysis of TCLP Metals in Soil by ICP-AES					
Arsenic	mg/kg	6.1 U	6.2 U	6.2 U	
Barium	mg/kg	72.5	125	82.5	
Cadmium	mg/kg	3.5	3.5	3.6	
Chromium	mg/kg	16.3	18.0	17.6	
Lead	mg/kg	6.1 U	6.2 U	6.2 U	
Selenium	mg/kg	12.3 U	12.3 U	12.5 U	
Silver	mg/kg	2.5 U	2.5 U	2.5 U	
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	59	26	81	
Benzene	ug/kg	5.9 U	5.7 U	6.2 U	
Bromodichloromethane	ug/kg	5.9 U	5.7 U	6.2 U	
Bromoform	ug/kg	5.9 U	5.7 U	6.2 U	
Bromomethane	ug/kg	5.9 U	5.7 U	6.2 U	
2-Butanone	ug/kg	12 U	11 U	12 U	
Carbon Disulfide	ug/kg	5.9 U	5.7 U	6.2 U	
Carbon Tetrachloride	ug/kg	5.9 U	5.7 U	6.2 U	
Chlorobenzene	ug/kg	5.9 U	5.7 U	6.2 U	
Chloroethane	ug/kg	5.9 U	5.7 U	6.2 U	
Chloroform	ug/kg	5.9 U	5.7 U	6.2 U	
Chloromethane	ug/kg	5.9 U	5.7 U	6.2 U	
Cyclohexane	ug/kg	5.9 U	5.7 U	6.2 U	
1,2-Dibromo-3-Chloropropane	ug/kg	5.9 U	5.7 U	6.2 U	
Dibromochloromethane	ug/kg	5.9 U	5.7 U	6.2 U	
1,2-Dibromoethane	ug/kg	5.9 U	5.7 U	6.2 U	
1,2-Dichlorobenzene	ug/kg	5.9 U	5.7 U	6.2 U	
1,3-Dichlorobenzene	ug/kg	5.9 U	5.7 U	6.2 U	
1,4-Dichlorobenzene	ug/kg	5.9 U	5.7 U	6.2 U	
Dichlorodifluoromethane	ug/kg	5.9 UJ	5.7 UJ	6.2 UJ	
1,1-Dichloroethane	ug/kg	5.9 U	5.7 U	6.2 U	
1,2-Dichloroethane	ug/kg	5.9 U	5.7 U	6.2 U	
1,1-Dichloroethene	ug/kg	5.9 U	5.7 U	6.2 U	
cis-1,2-Dichloroethene	ug/kg	5.9 U	5.7 U	6.2 U	
trans-1,2-Dichloroethene	ug/kg	5.9 U	5.7 U	6.2 U	
1,2-Dichloropropane	ug/kg	5.9 U	5.7 U	6.2 U	
cis-1,3-Dichloropropene	ug/kg	5.9 U	5.7 U	6.2 U	
trans-1,3-Dichloropropene	ug/kg	5.9 U	5.7 U	6.2 U	
Ethyl Benzene	ug/kg	5.9 U	5.7 U	6.2 U	
2-Hexanone	ug/kg	5.9 U	5.7 U	6.2 U	
Isopropylbenzene	ug/kg	5.9 U	5.7 U	6.2 U	
Methyl Acetate	ug/kg	5.9 U	5.7 U	6.2 U	
Methyl tert-butyl ether	ug/kg	5.9 U	5.7 U	6.2 U	
Methylcyclohexane	ug/kg	5.9 U	5.7 U	6.2 U	
Methylene Chloride	ug/kg	5.9 U	5.7 U	6.2 U	

Analysis/ Analyte	Units	12-__	13-__	14-__	104-__
4-Methyl-2-Pentanone	ug/kg	5.9 U	5.7 U	6.2 U	
Naphthalene	ug/kg	12 U	11 U	12 U	
Styrene	ug/kg	5.9 U	5.7 U	6.2 U	
1,1,2,2-Tetrachloroethane	ug/kg	5.9 U	5.7 U	6.2 U	
Tetrachloroethene	ug/kg	5.9 U	5.7 U	6.2 U	
Toluene	ug/kg	5.9 U	5.7 U	6.2 U	
1,2,3-Trichlorobenzene	ug/kg	5.9 U	5.7 U	6.2 U	
1,2,4-Trichlorobenzene	ug/kg	5.9 U	5.7 U	6.2 U	
1,1,1-Trichloroethane	ug/kg	5.9 U	5.7 U	6.2 U	
1,1,2-Trichloroethane	ug/kg	5.9 U	5.7 U	6.2 U	
Trichloroethene	ug/kg	5.9 U	5.7 U	6.2 U	
Trichlorofluoromethane	ug/kg	5.9 U	5.7 U	6.2 U	
1,1,2-Trichlorotrifluoroethane	ug/kg	5.9 U	5.7 U	6.2 U	
Vinyl Chloride	ug/kg	5.9 U	5.7 U	6.2 U	
m and/or p-Xylene	ug/kg	12 U	11 U	12 U	
o-Xylene	ug/kg	5.9 U	5.7 U	6.2 U	
1 Metals in Water by ICP/MS					
Antimony	ug/L				10.0 U
Arsenic	ug/L				18.4
Barium	ug/L				1750
Beryllium	ug/L				5.0 U
Cadmium	ug/L				40.4
Chromium	ug/L				10.0 U
Cobalt	ug/L				19.2
Copper	ug/L				10.0 U
Lead	ug/L				5.0 U
Manganese	ug/L				2730
Nickel	ug/L				397
Selenium	ug/L				25.0 U
Silver	ug/L				5.0 U
Thallium	ug/L				5.0 U
Vanadium	ug/L				26.8
Zinc	ug/L				76.4
1 VOCs in Water by GC/MS					
Acetone	ug/L				10 UJ
Benzene	ug/L				5.0 U
Bromodichloromethane	ug/L				5.0 U
Bromoform	ug/L				5.0 U
Bromomethane	ug/L				5.0 U
2-Butanone	ug/L				5.0 UJ
Carbon Disulfide	ug/L				5.0 U
Carbon Tetrachloride	ug/L				5.0 U
Chlorobenzene	ug/L				5.0 U
Chloroethane	ug/L				5.0 U
Chloroform	ug/L				5.0 U

Analysis/ Analyte	Units	12-__	13-__	14-__	104-__
Chloromethane	ug/L				5.0 U
Cyclohexane	ug/L				5.0 U
1,2-Dibromo-3-Chloropropane	ug/L				5.0 U
Dibromochloromethane	ug/L				5.0 U
1,2-Dibromoethane	ug/L				5.0 U
1,2-Dichlorobenzene	ug/L				5.0 U
1,3-Dichlorobenzene	ug/L				5.0 U
1,4-Dichlorobenzene	ug/L				5.0 U
Dichlorodifluoromethane	ug/L				5.0 U
1,1-Dichloroethane	ug/L				5.0 U
1,2-Dichloroethane	ug/L				5.0 U
1,1-Dichloroethene	ug/L				5.0 U
cis-1,2-Dichloroethene	ug/L				5.0 U
trans-1,2-Dichloroethene	ug/L				5.0 U
1,2-Dichloropropane	ug/L				5.0 U
cis-1,3-Dichloropropene	ug/L				5.0 U
trans-1,3-Dichloropropene	ug/L				5.0 U
Ethyl Benzene	ug/L				5.0 U
2-Hexanone	ug/L				5.0 UJ
Isopropylbenzene	ug/L				5.0 U
Methyl Acetate	ug/L				5.0 U
Methyl tert-butyl ether	ug/L				10 U
Methylcyclohexane	ug/L				5.0 U
Methylene Chloride	ug/L				5.0 U
4-Methyl-2-Pentanone	ug/L				5.0 U
Naphthalene	ug/L				10 U
Styrene	ug/L				5.0 U
1,1,2,2-Tetrachloroethane	ug/L				5.0 U
Tetrachloroethene	ug/L				5.0 U
Toluene	ug/L				5.0 U
1,2,3-Trichlorobenzene	ug/L				5.0 U
1,2,4-Trichlorobenzene	ug/L				5.0 U
1,1,1-Trichloroethane	ug/L				5.0 U
1,1,2-Trichloroethane	ug/L				5.0 U
Trichloroethene	ug/L				5.0 U
Trichlorofluoromethane	ug/L				5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L				5.0 U
Vinyl Chloride	ug/L				5.0 U
m and/or p-Xylene	ug/L				10 U
o-Xylene	ug/L				5.0 U

Analysis/ Analyte	Units	105-__	106-__	106-FD	107-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm		3.57	3.57	
1 Metals in Water by ICP/MS					
Antimony	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Arsenic	ug/L	15.0	5.6	5.0 U	5.0 U
Barium	ug/L	1250	901	882	25.0 U
Beryllium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Cadmium	ug/L	28.9	5.0 U	5.0 U	5.0 U
Chromium	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Cobalt	ug/L	5.5	5.0 U	5.0 U	5.0 U
Copper	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Lead	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Manganese	ug/L	3270	2840	3610	5.0 U
Nickel	ug/L	409	19.0	16.5	5.0 U
Selenium	ug/L	25.0 U	25.0 U	25.0 U	25.0 U
Silver	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Thallium	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Vanadium	ug/L	30.5	18.5	14.4	5.0 U
Zinc	ug/L	98.8	10.0 U	10.0 U	10.0 U
1 pH of Water by Field Measurement					
pH	SU		6.77	6.77	
1 Temperature of Water by Field Measurement					
Temperature	Deg C		24.23	24.23	
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L		2.69	2.69	
1 Turbidity of Water by Field Measurement					
Turbidity	NTU		765	765	
1 VOCs in Water by GC/MS					
Acetone	ug/L	10 UJ	10 UJ	10 UJ	10 UJ
Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U

Analysis/ Analyte	Units	105-__	106-__	106-FD	107-__
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	10 U	10 U	10 U	10 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Naphthalene	ug/L	10 U	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Trichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
m and/or p-Xylene	ug/L	10 U	10 U	10 U	10 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

Analysis/ Analyte	Units	108-__	109-__	110-FB
1 Metals in Water by ICP/MS				
Antimony	ug/L	10.0 U	10.0 U	
Arsenic	ug/L	5.0 U	5.0 U	
Barium	ug/L	25.0 U	25.0 U	
Beryllium	ug/L	5.0 U	5.0 U	
Cadmium	ug/L	5.0 U	5.0 U	
Chromium	ug/L	10.0 U	10.0 U	
Cobalt	ug/L	5.0 U	5.0 U	
Copper	ug/L	10.0 U	10.0 U	
Lead	ug/L	5.0 U	5.0 U	
Manganese	ug/L	5.0 U	5.0 U	
Nickel	ug/L	5.0 U	5.0 U	
Selenium	ug/L	25.0 U	25.0 U	
Silver	ug/L	5.0 U	5.0 U	
Thallium	ug/L	5.0 U	5.0 U	
Vanadium	ug/L	5.0 U	5.0 U	
Zinc	ug/L	10.0 U	11.8	
1 VOCs in Water by GC/MS				
Acetone	ug/L	10 UJ	10 UJ	10 UJ
Benzene	ug/L	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 U	5.0 U	5.0 U
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U

Analysis/ Analyte	Units	108-__	109-__	110-FB
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	5.0 UJ	5.0 UJ	5.0 UJ
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	10 U	10 U	10 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	5.0 U	5.0 U	5.0 U
Naphthalene	ug/L	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	5.0 U	5.0 U	5.0 U
m and/or p-Xylene	ug/L	10 U	10 U	10 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U